



Über dieses Buch

Dies ist ein digitales Exemplar eines Buches, das seit Generationen in den Regalen der Bibliotheken aufbewahrt wurde, bevor es von Google im Rahmen eines Projekts, mit dem die Bücher dieser Welt online verfügbar gemacht werden sollen, sorgfältig gescannt wurde.

Das Buch hat das Urheberrecht überdauert und kann nun öffentlich zugänglich gemacht werden. Ein öffentlich zugängliches Buch ist ein Buch, das niemals Urheberrechten unterlag oder bei dem die Schutzfrist des Urheberrechts abgelaufen ist. Ob ein Buch öffentlich zugänglich ist, kann von Land zu Land unterschiedlich sein. Öffentlich zugängliche Bücher sind unser Tor zur Vergangenheit und stellen ein geschichtliches, kulturelles und wissenschaftliches Vermögen dar, das häufig nur schwierig zu entdecken ist.

Gebrauchsspuren, Anmerkungen und andere Randbemerkungen, die im Originalband enthalten sind, finden sich auch in dieser Datei – eine Erinnerung an die lange Reise, die das Buch vom Verleger zu einer Bibliothek und weiter zu Ihnen hinter sich gebracht hat.

Nutzungsrichtlinien

Google ist stolz, mit Bibliotheken in partnerschaftlicher Zusammenarbeit öffentlich zugängliches Material zu digitalisieren und einer breiten Masse zugänglich zu machen. Öffentlich zugängliche Bücher gehören der Öffentlichkeit, und wir sind nur ihre Hüter. Nichtsdestotrotz ist diese Arbeit kostspielig. Um diese Ressource weiterhin zur Verfügung stellen zu können, haben wir Schritte unternommen, um den Missbrauch durch kommerzielle Parteien zu verhindern. Dazu gehören technische Einschränkungen für automatisierte Abfragen.

Wir bitten Sie um Einhaltung folgender Richtlinien:

- + *Nutzung der Dateien zu nichtkommerziellen Zwecken* Wir haben Google Buchsuche für Endanwender konzipiert und möchten, dass Sie diese Dateien nur für persönliche, nichtkommerzielle Zwecke verwenden.
- + *Keine automatisierten Abfragen* Senden Sie keine automatisierten Abfragen irgendwelcher Art an das Google-System. Wenn Sie Recherchen über maschinelle Übersetzung, optische Zeichenerkennung oder andere Bereiche durchführen, in denen der Zugang zu Text in großen Mengen nützlich ist, wenden Sie sich bitte an uns. Wir fördern die Nutzung des öffentlich zugänglichen Materials für diese Zwecke und können Ihnen unter Umständen helfen.
- + *Beibehaltung von Google-Markenelementen* Das "Wasserzeichen" von Google, das Sie in jeder Datei finden, ist wichtig zur Information über dieses Projekt und hilft den Anwendern weiteres Material über Google Buchsuche zu finden. Bitte entfernen Sie das Wasserzeichen nicht.
- + *Bewegen Sie sich innerhalb der Legalität* Unabhängig von Ihrem Verwendungszweck müssen Sie sich Ihrer Verantwortung bewusst sein, sicherzustellen, dass Ihre Nutzung legal ist. Gehen Sie nicht davon aus, dass ein Buch, das nach unserem Dafürhalten für Nutzer in den USA öffentlich zugänglich ist, auch für Nutzer in anderen Ländern öffentlich zugänglich ist. Ob ein Buch noch dem Urheberrecht unterliegt, ist von Land zu Land verschieden. Wir können keine Beratung leisten, ob eine bestimmte Nutzung eines bestimmten Buches gesetzlich zulässig ist. Gehen Sie nicht davon aus, dass das Erscheinen eines Buchs in Google Buchsuche bedeutet, dass es in jeder Form und überall auf der Welt verwendet werden kann. Eine Urheberrechtsverletzung kann schwerwiegende Folgen haben.

Über Google Buchsuche

Das Ziel von Google besteht darin, die weltweiten Informationen zu organisieren und allgemein nutzbar und zugänglich zu machen. Google Buchsuche hilft Lesern dabei, die Bücher dieser Welt zu entdecken, und unterstützt Autoren und Verleger dabei, neue Zielgruppen zu erreichen. Den gesamten Buchtext können Sie im Internet unter <http://books.google.com> durchsuchen.

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

<https://books.google.com>







100

100

100

100

100

100

100

100

100

100

100

100

THE ARCHITECT AND CONTRACT REPORTER.

A JOURNAL OF ART, CIVIL ENGINEERING & BUILDING.

VOL. XC.-No. 2364.

FRIDAY, JULY 4, 1913.

TELEPHONE: H. JOHN 4725.

[Registered as a Newspaper
at the General Post Office.]{PRICE: 4d.
By Post, 4½d.
TELEGRAMS: "ARCHITONIA, LONDON."

Hobbs, Hart & Co.'s
SECURITY
DURABILITY
ECONOMY
LOCKS
76 CHEAPSIDE, E.C.

JAMES RUSSELL & SONS, LIM.
CROWN TUBE WORKS,
WEDNESBURY.

WAREHOUSES—
London: 108 Southwark Street, S.E.
Manchester: 33 King Street West.
Birmingham: 8 Temple Street.
Leeds: 6 Mark Lane, Briggate.

BY SPECIAL APPOINTMENT TO H.M. THE KING.
WAYGOOD
LIFTS
FALMOUTH ROAD, S.E.

ELECTRIC LIGHTING.
EDEY & CO., 25 Warwick Lane, E.C.

ASPHALTE. (T.N. 2644 Central.)
THE SEYSSSEL AND METALLIC LAVA
ASPHALTE CO. (MR. H. GLENN.)
See List of Works and Prices, apply 42 POULTRY, LONDON, E.C.

RIPOLIN
PAINT.

35 MINORIES, LONDON, E.

CHUBB'S
STEEL FIRE-RESISTING
DOORS

ARE THE BEST FOR STRONG-ROOMS.

Illustrated Price Lists post free.

128 Queen Victoria St., London.
WORKS: LONDON and WOLVERHAMPTON.

SLATES, TILES
OF EVERY DESCRIPTION.

Contractors for
ROOFING & WALL & FLOOR TILING.
Roberts, Adlard & Co., Bermondsey Wall, S.E. 1803

DRY AUSTRIAN WAINSCOT
MAHOGANY. TEAK
W. & J. R. HUNTER, Ltd.
5 to 11 Bethnal Green Road, London, E.
WALNUT. WHITEWOOD.
ALL AMERICAN HARDWOODS

MOULE'S Earth Closets
2 Guilford St., London, W.C.

"TURNER" ELECTRIC MOTORS,
LIFTS AND HOISTS.
LIFTS
TURNER, ATHERTON & Co., Ltd.
Denton, Manchester.

LIFTS **GIMSON & CO.**
(Leicester), Ltd.,
ENGINEERS, Leicester.

"JODELITE" (REG.)

THE ORIGINAL BRITISH WOOD PRESERVATIVE
for the Preservation of Timber, Ropes,
&c., and the prevention of dry-rot
and fungus, dampness in walls, &c.
HAS STOOD THE TEST OF TIME (OVER 20 YEARS).
Invaluable against the attack of White Ants & Teredo.
Beware of inflammable imitations that are only stains.
MANUFACTURED ONLY BY
JOSEPH DEE & SONS, MANCHESTER
5 Cross Street,
CONTRACTORS TO H.M. GOVERNMENT.
N.T. 1899 CITY. T.A. "DELIGHT, MANCHESTER."

WM. OLIVER & SONS,
LIMITED,
120 Bunhill Row, London, E.C.
THOROUGHLY DRY WAINSCOT, MAHOGANY,
WALNUT, TEAK, AND OTHER HARDWOODS.

MANCHESTER { GRATES,
STOVES and
VENTILATORS.
E. H. Shorland & Bro. Ltd., Fallowfield, Manchester

LIFTS **SMITH, MAJOR & STEVENS,**
(Late Archibald Smith & Stevens) Ltd.
BATTERSEA, LONDON and
Abbey Works, NORTHAMPTON

OTIS ELEVATORS
4 Queen Victoria Street, E.C.

BELLS **CHURCH - SCHOOL - CLOCK.**
JOHN WARNER & SONS, Ltd.
Bell Founders to H.M. King
George V. Estab. 1763. Spelman
St., Spitalfields, London, N.E.

ARCHITECTS'
BENEVOLENT SOCIETY.
FOUNDED 1850.

Subscriptions to enable the Council to carry
on the work efficiently are urgently needed.
It is hoped that every architect in active
practice will become a subscriber.
Unpaid subscriptions for the current year
will be gratefully received.
W. HILTON NASH, Hon. Treasurer.
PERCIVALL CURREY, Hon. Secretary
9 Conduit Street, W.

FALDO'S
ASPHALTE

GUARANTEED ABSOLUTELY PURE.
THOS. FALDO & Co., Ltd.
Effingham House, Arundel St.,
STRAND, LONDON, W.C.

HAHN & CO. **HAHN & CO.**
Alexandra Wharf, Tidal Basin Station,
London, E.
DRY MAHOGANY, DRY WAINSCOT, DRY TEAK,
WALNUT, BIRCH, and all other Foreign
HARDWOODS DRY.
Alexandra Wharf, Tidal Basin Station,
London, E.
HAHN & CO. **HAHN & CO.**



PLANING
IRON CASTINGS
OF EVERY
DESCRIPTION
ON THE
SHORTEST
NOTICE
A LARGE
& VARIED STOCK
OF PATTERNS

ESTABLISHED 1800.
JONES & CO.
CANNON IRONFOUNDRY, Goswell Road, London, E.C.
CAST IRON

COLUMNS, STANCHIONS, VERANDAS, BALCONIES, RAILINGS, STAIRCASES,
SASHES & CASEMENTS, TANKS, LIQUOR BACKS, &c.

SPECIAL MACHINERY FOR HEAVY ENGINEERING WORK.

HEAVY FORGE AND STEAM HAMMER WORK.

ESTIMATES AND DESIGNS ON APPLICATION.

TURNING
IRON & STEEL
ROOFS
FIREPROOF DOORS
SCREW CUTTING
PUNCHING
SHEARING
BORING
GENERAL
ENGINEERING
REPAIRS



Invaluable for the protection of Wooden Buildings, Fences, &c., &c. Gives a nice nut-brown colour. Horses will not bite wood treated with it. Has been proved a success for the last twenty-seven years in this country, and is used regularly on many of the largest estates.

CARBOLINEUM

WOOD PRESERVATIVE, ANTISEPTIC AND DISINFECTANT.
UNDOUBTEDLY THE BEST WOOD PRESERVATIVE KNOWN.

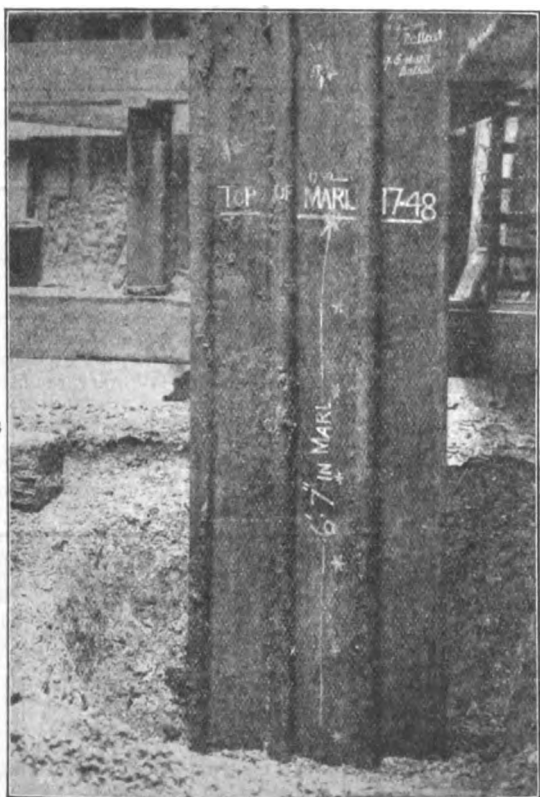
C. A. Peters, Ltd., Derby,

And 116 Newgate Street, LONDON, E.C.,
And 4 Castle Street Arcade, LIVERPOOL.

Agents for Scotland—The Glasgow Patents Co., Ltd., 120 Gt. Wellington Street, GLASGOW.

Agents for Nottinghamshire and Lincolnshire—W. Robinson (Nottm.), Ltd., 7 and 9 Victoria Street, NOTTINGHAM.

Agents for Leicestershire—W. Robinson (Nottm.), Ltd., Churchgate, LEICESTER.



UNITED STATES STEEL SHEET PILING.

This Photograph, taken 50 ft. below the surface level, shows a most successful test drive of our 12 in. by 40 lb. section as a preliminary to the reconstruction of the West Wing Wall Trench, Alexandra Dock, Newport, Mon., England. Other Piling, experimented upon at the same time and under identically the same conditions, failed ignominiously to penetrate the coarse compact bouldery ballast which lies on the marl in this district.

For strength of interlock, ease and rapidity of driving and pulling, watertightness, and other important features, United States Steel Sheet Piling undoubtedly holds premier position.

For Illustrated Catalogues and complete information apply to

United States Steel Products Co.

36-38 NEW BROAD STREET, LONDON, E.C.

or to any of the following Sales Offices:

BATAVIA, Java.
BOMBAY, 74-76 Hornby Road.
BUENOS AYRES, 344 Bartolome Mitre.
CAPETOWN, New York Mutual Life Bldg.
JOHANNESBURG, The Corner House.
LIMA, Calle Carabaya (Coca), 402.
MEXICO CITY, Edificio de la Mutua.

MONTREAL, Bank of Ottawa Bldg.
NEW YORK, 30 Church Street.
RIO DE JANEIRO, Brazil.
SHANGHAI, 24a Kowloon Road.
SYDNEY, New York Mutual Life Bldg.
TORONTO, Ontario, 220 King St. West.
VALPARAISO, Casilla 330.
VANCOUVER, 846 Beach Av.
WINNIPEG, McArthur Bldg.

S. W. FRANCIS & CO., LTD.,
64-70 Gray's Inn Rd., London, W.C.

REVOLVING SHUTTERS,
METAL SHOP FRONTS.

**NEW INTERLOCKING
FIREPROOF SHUTTERS.**

THE
ARCHITECT
AND
A
CONTRACT REPORTER.

VOL. XC.

PRINTED BY
SPOTTISWOODE & CO. LTD., LONDON
COLCHESTER AND ETON

THE
ARCHITECT
AND
Contract Reporter.
A WEEKLY
ILLUSTRATED JOURNAL
OF
ART,
CIVIL ENGINEERING,
AND
BUILDING.

Architectura est scientia pluribus disciplinis et variis eruditionibus ornata.—VITRUVIUS.

UNIV. OF
CALIFORNIA

VOL. XC.

JULY TO DECEMBER 1913.

LONDON:

PUBLISHED AT IMPERIAL BUILDINGS, LUDGATE CIRCUS, E.C.

18-1
2-1
10-10

18-1

18-1

TO THE
APPROPRIATE

THE ARCHITECT AND CONTRACT REPORTER. A JOURNAL OF ART, CIVIL ENGINEERING & BUILDING.

CONTENTS.

	PAGE
Reinforced Concrete in London	1
Notes and Comments	2
Cartoon of Window at Harrow (illustration)	3
Competition News	4
Illustrations :—	
An Old Street in Dover	4
Rue Eau de Robec, Rouen	4
Beverley Minster, Wrought-Iron Gates	4
Thomas Coat's Memorial Church, Paisley	4
St. Matthew's Church, Edinburgh	4
Modern Systems of Steel Sheet Piling (illustrated)	5
R.I.B.A. Examinations	7
Ventilation of Leeds Schools	8
Cartoon of Window at Eyam Church, Derbyshire (illustration)	9
Degree Course in Architecture, Sheffield University	9
The Town Planning of Greater London	10
Nottingham and Derby Architectural Society	11
Illuminating Engineering Society	11
Ancient Monuments Bill, 1913	11
Pictures and Drawings by Bonington and Cotman	12
Landscapes at the Dowdeswell Galleries	12
Architecture in St. Petersburg (illustrated)	13
Building Progress in the Provinces	19
British Patent Specifications	21
Commons and Footpaths Preservation Society	23
Correspondence	23

FORTHCOMING EVENTS.

Saturday, July 5.

Edinburgh Architectural Association : Annual Excursion to Aberdeen, leaving Waverley Station at 7.40 A.M.
Northern Architectural Association : Visit to "Armstrong Yard," Walker.
Royal Sanitary Institute : Health Exhibition at Exeter opens at 3 P.M.

Monday, July 7.

Royal Institute of British Architects : Adjourned Special General Meeting to resume consideration of the draft revised Schedule of Professional Charges, commencing with Clause 2, at 8 P.M.
Royal Sanitary Institute : Annual Congress at Exeter (July 7-12).
British Archaeological Association : Annual Congress at Cambridge (July 7-12).

Wednesday, July 9.

Cricket Match : Royal Institute of British Architects v. Architectural Association at the A.A. Athletic Ground at Elstree, at 11.15 A.M.

Thursday, July 10.

Architectural Association : Summer Visit to Dublin (July 10-13).

REINFORCED CONCRETE IN LONDON.

THE regulations for the use of reinforced concrete in London, originally made and confirmed by the London County Council, have now been revised after prolonged negotiations between technical advisers of the Council and the Local Government Board, and may therefore now be presumed to be in the form in which they will become valid as part of the building law of the Metropolis.

Speaking generally the alterations made by the Local Government Board are chiefly changes in form only, though in some circumstances they render the regulations somewhat more onerous than those originally adopted by the Council. The Building Acts Committee of the Council recommend that it is expedient to adopt the modifications made by the Board, so that the regulations may speedily come into force and ensure safety in the employment of this method of construction. One of the earliest clauses defines that these regulations apply only to the construction of buildings in reinforced concrete in which the load and stresses are transmitted through each storey to the foundations by a skeleton framework of reinforced concrete, or partly by a skeleton framework of reinforced concrete and partly by a party wall or party walls. Presumably, therefore, we are still left without regulations where floors or roofs are constructed of reinforced concrete, but their loads and stresses are transmitted to the foundations by some other means of construction than reinforced concrete pillars.

The advantages of reinforced concrete as a material for imparting fire-resisting qualities to buildings is recognised by the provision that all floors and staircases within the reinforced concrete framework, together with

their enclosing walls, shall be constructed throughout of incombustible materials to be carried upon supports of incombustible materials, but it is nevertheless provided that wood or other combustible material may be placed on or over the surface of the concrete, provided that any voids or hollow spaces between the combustible and incombustible material be filled up with materials of incombustible nature. In many essential points the regulations for reinforced concrete adopt both form and principle of those for steel-framed buildings; thus, for example, the loads of floors and roofs adopt the same figures as already laid down. There is, however, a concession allowed in the case of various classes of public buildings which in the steel-framed structures would have to be regarded under the general heading of buildings of the warehouse class, and their super-imposed load is now to be taken at 1 cwt. per square foot instead of 2 cwt. The same illogical distinction between the super-imposed load for roofs at a greater angle than 20 degrees to the horizontal and all other roofs is still retained.

There appears to be some confusion with regard to the provision to be made in calculations for wind pressure. All buildings, it is provided, shall be so designed as to resist safely a wind pressure in any horizontal direction of not less than twenty lb. per square foot of the whole projected surface, normal to the direction of the wind. This is a variation to the stipulation for steel-framed buildings that the latter should be so designed as to resist safely the wind pressure in any horizontal direction of not less than thirty lb. per square foot of the upper two-thirds of their surface. On the other hand, the influence of the older regulations appears to have dictated the provision that each panel in any external wall shall be designed to resist safely a horizontal pres-

sure of at least thirty lb. per square foot assumed to be acting uniformly over the area of one panel from either side.

The now generally accepted formulas for calculations of bending moments are adopted, but it is provided that when the length of a slab exceeds twice its breadth, no allowance shall be made for support in the direction of the length of such slab. The bending moment on slabs is then to be calculated as for beams. The working stresses in concrete and also steel which are to be considered permissible are rigidly fixed, and are not determinable by reference to test results of any particular material, so that there is no encouragement to use material of other than the minimum quality contemplated by the regulations.

The regulations give special attention to the anchoring at the ends of bars as well as for the adhesion length of a bar. At the same time it should be noted that the concrete may be assumed to take up a shearing stress of sixty lb. per square inch. Provision is made for giving greater advantages to bars having a mechanical bond. It would appear that expanded metal could still not be considered as a permissible means of reinforcement, as it is provided with regard to slabs that all rigidly connected mesh reinforcement shall be at least one-tenth of an inch in diameter or thickness.

In the calculations of resistance moments for reinforced concrete construction under transverse loads, the following assumptions are to be made: (a) all tensile stresses shall be taken by the steel; (b) the strain in any fibre is directly proportionate to the distance of that fibre from the neutral axis; (c) the tensile elastic modulus of concrete shall be estimated to be equal to the compressive elastic modulus of that material; (d) the elastic moduli of the concrete remain constant within the limits of the working stress; (e) the stress-strain curve or graph is a straight line; (f) the grip between the concrete and steel is sufficient to make the two materials act together.

The regulations for computing the resistance moment to a tee beam are somewhat onerous, it being provided that the breadth of the flange shall not be taken at more than (a) one-fourth of the effective span of the tee beam; (b) three-fourths of the distance between the centres of the ribs of the tee beams; (c) six times the breadth of the top of the rib of the tee beam; (d) ten times the thickness of the slab, whichever is the least, and the overhanging breadth of the flange on either side of the rib shall not be taken at more than four times the thickness of the slab.

The regulations for pillars, whilst in accordance with present-day practice, are, as is too often the case in building legislation, restrictive of improvements. For example, it is provided that the diameter of vertical rods shall not be less than half-inch nor greater than two inches. It is also provided that each pillar with rectilinear laterals shall have at least four lines of vertical reinforcement throughout its entire length, and that each pillar with curvilinear laterals shall have at least six lines of vertical reinforcement throughout its entire length. These regulations would prohibit the use of reinforced concrete-steel columns made according to the Thomson patents and owned by Reinforced Metal, Ltd., which attracted so much attention at this year's Building Exhibition, and which has been shown to possess more than double the strength obtainable from the usual combinations of concrete and steel in which the same weights of these materials are employed. Thus the regulations as drawn prevent the use of better methods than those for which they are contemplated.

A somewhat similar objection may be raised to the restriction that pillars of greater ratio of virtual length to effective diameter than twenty-four shall not be used. Such provision prevents an inventor from devising a method of construction in which a combination of concrete and steel may be advantageously used in pillars of more than twenty-four diameters high. In dealing with a comparatively new method of construction, such as reinforced concrete, we think that the regulations should

above all avoid cramping the development of the new method. In fact, the general criticism of these regulations will apply throughout, that they are too grandmotherly and restrictive; and whilst they ensure, as far as design goes, safety in reinforced concrete construction according to our present knowledge, they tend to hamper and prevent development and improvement beyond what is at present known or practised.

Why should anyone be prevented from building in concrete and steel in any way he pleases if he is prepared to take the risk and bear the responsibility of a mistake? The present regulations, in spite of their apparently minute particularity, are not sufficient to absolutely prevent the possibility of an accident or failure, because however much care may be given to a design and the calculation of stresses, strains, and resistances, the safety of reinforced concrete depends ultimately upon the man who makes and handles the concrete. You may have the sizes and position of your steel rods or stirrups, and rectilinear or curvilinear laterals determined to a nicety by the most intricate of formulas, but unless the labourer who packs the concrete round the steel does his work perfectly there will be a catastrophe.

It is true that there is a provision in the regulations that if at any time during the construction, or within two months after the completion of the reinforced concrete construction, it is found necessary to test any part of such construction by reason of any sign of weakness or faulty work appearing in the construction, the builder or other person causing or directing the work to be executed shall make such tests, and, if the test shows the work to be faulty, it shall be reconstructed and reinstated in accordance with these regulations. The unfortunate part about imperfect workmanship in reinforced concrete construction is that it does not usually show "any sign of weakness or faulty work" until collapse occurs. By making regulations the London County Council and the Local Government Board take upon themselves the responsibility for the efficiency of these regulations to ensure safety to the public; and if, as we think is possible, a catastrophe should occur in any building strictly complying with the regulations, the authorities must bear the blame.

NOTES AND COMMENTS.

SIR THOMAS G. JACKSON, R.A., is one of the body of leading architects who have recently visited St. Paul's Cathedral for the purpose of examining the signs of settlement and the work now being done on the fabric, and the effect upon his mind has been set out in a letter to Sir Francis Fox which has been published in *The Times* and commented upon by the daily Press. He has evidently been alarmed by the cracks which have been shown to him, the worst of which are those in the radiating buttresses at the springing of the dome drum. Possibly Sir Thomas has not looked at the drawing showing the cross-section through the dome and indicating the cracks on these buttresses. It is perfectly clear from this drawing that we have here simply the ordinary case of settlement between unevenly loaded parts of a connected construction. There is one wall vertically below the dome and carrying the whole of its load; there is another wall parallel with this and carrying the external peristyle; these are connected by the radiating buttresses, which also extend outward beyond the line of the second wall; thus we have two walls with very different loads upon them and buttresses which have practically no load beyond their own weight. It is not astonishing therefore that the mortar joints in these three distinct, unequally loaded, but connected structures have compressed unequally, and hence the alarming cracks, which do not, however, indicate any serious danger.

It should be noted, with regard to the "loose rubble of small stones laid in very inferior mortar," evident in the core of the piers in the crypt, that this is only seen



CARTOON OF WINDOW AT CONVENT OF THE VISITAT
HARROW.—Designed and executed by Mr. ARTHUR A. ORR.

to extend for a small distance from the ashlar facing. It may extend into the bulk of the pier, but those who have visited the Cathedral recently have not seen any evidence that this is so, and it is almost impossible to believe that a core wholly composed of such loose rubble of small stones as has been shown to the visitors could have supported the weight of the superstructure for 250 years. Our conclusion is, that in spite of all alarming evidence, the main structure of the Cathedral is far from being in a dangerous condition, and that the chief element of future trouble is the layer of sand charged with water which exists in part, at any rate, beneath the clay and gravel upon which Sir Christopher Wren laid his foundations, and any disturbance of which might be attended with very serious consequences.

The grounds of the opposition in the Dublin Municipal Council to the proposal that the new art gallery should be built on a site selected by Mr. Lutyens, and in accordance with his design, seem to have been based on a collection of all sorts of fanciful ideas. It was urged that the scheme would create a heavier burden on the rates than was estimated by the proposers. It was also brought forward that the money ought not to be spent on an art gallery but upon the housing of the poor, although this is provided for by statutory enactments. Another objection was that Irish architects ought to be allowed to compete for the appointment of architect to the new art gallery. The amendment, which was carried, simply postpones matters and gives an opportunity for further acrimonious discussion.

The slate-quarrying industry of North Wales is said to be in a worse position at the present time than it has been for the past forty years. This is accounted for mainly by the widespread inactivity in the building trade, but it is also due to the use of other materials for roofing, such as tiles for the best work and asbestos sheets for cheap roofs. In addition, American and French slates have shown signs lately of making more aggressive inroads into the English market than has been the case for some years. Accordingly there is a proposal to form a combine of all the slate quarries in North Wales to safeguard their interests as far as the sale of slate is concerned. It is not intended to interfere with the management of individual quarries nor to make any attempt to regulate the relations of capital and labour.

It is interesting to know that the ancient craft of flint-knapping is still being carried on in the little Suffolk town of Brandon, where there are to-day men of high skill who are capable of producing flint work equal to any that is to be found in East Anglian buildings of the mediæval period. It is rather astonishing to learn that this craft has been maintained up to the present time by a demand for gun-flints, tinder-flints, and imitations of prehistoric flint implements which we understand are so skilful as to deceive the best known collectors of relics of primitive man. It is comforting to know that architects can with confidence include in their designs knapped-flint work, which they have often feared to do under the impression that the craft was dead.

A striking absurdity of the interpretation now given to the Finance Act, as well as its gross injustice, is recorded in a letter to the *Yorkshire Post* relating to a brick field in which there is a large open clay hole some 50 feet deep, from which material has been extracted in the past for the making of bricks, but owing very largely to the effects of the Finance Act itself the demand for bricks from this field has so decreased that since the odious Act came into operation, these brickworks have been closed down with all machinery in place awaiting a revival of trade, and local rates and Schedule A income-tax have been paid on a reduced assessment. A valuation was made early this year, and shortly after undeveloped land tax was claimed for four years. Local rates, &c., have been paid on a developed industry, which at the same time is "derelict and undeveloped" according to the Finance Act. The height of absurdity is reached when the tax is claimed on a hole in the ground on which it is impossible to build, and the statement is put forth in all seriousness that the tax will have to be paid until the hole is filled up and built upon, no matter what restrictions the local authorities may put on this process.

In a letter to the *Manchester Guardian* Mr. E. B. Havell refers to the reply which has been communicated by the India Office to the signatories of the petition included as an appendix in his new book on Indian architecture. He says that they are told in polite phrases that they have been misinformed as to the facts of the case—that the master-builder for all practical purposes is as extinct in India as he is in Europe, that Indian craftsmen are only "decorators," and that as such the Government intend to find employment for them at Delhi. He makes the charge that for the last fifty years Indian departmentalism has, all unconsciously, been sitting on the State safety-valve by closing up all the chief outlets for the artistic activities of the Indian people, and on every occasion on which he has raised any question of vital artistic importance for India he has received the same official reply: "Indian art is only 'decorative'; it is not 'fine,' and has no practical use." The whole basis of art education in India has been the theory put forward in official text-books that there never has been any Indian "fine" art and never could be except by following the rules of Western academic teaching.

He goes on to say that the fine art of India has at last begun to loom upon the official horizon. It has begun to revive of its own accord in Bengal, officially reputed to be the least artistic province in India, only because he succeeded in lifting for a short space of time a part of the departmental incubus which prevented its free growth. His official experience was exactly the same with regard to Indian handicraft. In 1901, when he raised the question of preserving the most important, commercially speaking, of all Indian handicrafts—hand-loom weaving—official industrial statistics ignored its very existence. Lord Curzon disposed of the question at the Delhi Durbar by declaring that it was inevitable that the hand loom should be superseded by the power loom, just as the hand punkah was being superseded by the electric fan.

Since 1901, however, he asserts, there has been a most remarkable change in expert opinion on this question. The preservation and the development of the hand-weaving industry is now on the official programme in all the provinces of India, and departmental eyes which in 1901 could not see one hand weaver now see over five millions! History is repeating itself, he affirms, at the present moment with regard to the position of native Indian architecture. Some official experts declare that the Indian master-builder is a figment of the imagination, but unfortunately for them a special report on investigations into the matter which were begun two years ago by the Archaeological Survey of India has just been published. This report not only contains abundant material supplementing that which is given in the last chapters of his book on "Indian Architecture," but is preceded by a note written by the consulting architect to the Government of India, who takes for his text Fergusson's dictum, "Architecture in India is still a living art," and bears out in all essential points all that he has contended for in the question of the building of the new Delhi.

That town planning on modern lines is not a perfectly easy and straightforward matter is shown by the experience of the Birmingham Corporation, who have received notice that a claim for £10,000 is to be made on them in connection with the East Birmingham Town-Planning Scheme. This, speaking generally, divides up the planned area into sites for dwelling houses and sites for factories and workshops, public interest dictating the line of division. Landowners object to the arbitrary selection, principally on the ground that in a neighbourhood where there is a big demand for house accommodation the sites for factories are likely to "ripen" at a much later date than those for artisans' houses. In the first instance, the owners' remedy is to go before the inspector of the Local Government Board and state their objections, and, that having failed, they can in the last resort claim compensation from the City Council in respect of any injury the town-planning scheme may have inflicted upon them. In the event of such a claim the Local Government Board appoint an arbitrator to decide between the authority and the owner.

The first claim the Birmingham Corporation have had to deal with comes from Messrs. Wakley & Wakley, solicitors, on behalf of Mr. William Hutton, the owner of the Ward End Hall estate. The Ward End Hall estate contains an area of approximately 742 acres, including the old mansion known as Ward End Hall, Ward End Mill, and the Mill Pool. The Corporation propose to restrict two-thirds of the estate on the north side to factories only, whereas the owner believes the land to be specially adapted for artisans' houses. The restriction, it is contended, will prevent him from developing the property profitably, and involve him in a loss equal to the amount of his claim on the Corporation.

The Office of Works has applied to the Westminster City Council for permission to take up the road and form a subway in Whitehall Place, connecting the War Office with the new offices of the Board of Agriculture.

COMPETITION NEWS.

GLASGOW.—The Provincial Committee for the Training of Teachers has accepted plans for the proposed Training College by three out of the six competitors. The buildings will be of three separate blocks, a college, a demonstration school, and a hostel or lodging-home for women students. The committee, as they had reserved power to do, have placed these works in the hands of three firms of architects, the chief building, the college, falling to Messrs. H. & D. Barclay, St. Vincent Street, Glasgow. The practising school has been given to Messrs. Honeyman, Keppie & McIntosh, West George Street, Glasgow; and the hostel to Mr. Andrew Balfour, Mains Street, Blythswood Square, Glasgow. The buildings are estimated to cost about £120,000.

LONDON.—The Finchley Urban District Council have approved the following recommendations relative to the proposed swimming baths: (1) That competitive designs be invited from not more than eight architects (including two local ones—Messrs. F. E. Stratton, A.R.I.B.A., and J. H. Taylor, M.S.A.); (2) that a fee of five guineas be paid to each competitor and the selection of the remaining architects be left to the assessor; (3) that the usual fee of five per cent. on the cost of the work be paid to the successful competitor; (4) that Mr. H. W. Wills, F.R.I.B.A. (of Messrs. Wills & Anderson), 24 Bloomsbury Square, W.C., be appointed assessor at the usual fee prescribed by the R.I.B.A.—viz. thirty guineas, plus one-fifth of one per cent. of the cost of the work—approximately forty guineas in all; (5) that the clerk of the Council prepare the conditions of competition in conjunction with the assessor, which conditions shall contain a clause stipulating (*inter alia*) that the estimated cost of £4,500 shall, under no circumstances, be exceeded.

PRESTON.—It has been decided to invite competitive plans for a new day and Sunday school in connection with the Ribblesdale Avenue Wesleyan Church, to accommodate the largest possible number of scholars, and be erected at an approximate cost of £4,000.

RELGATE.—The Board of Guardians are prepared to receive the names of architects willing to submit competitive designs for proposed infirmary. The competition will be limited to twelve architects, of whom four may be residing or practising beyond the limits of the Union. The Guardians reserve the right to employ the services of a professional assessor. The list will be closed on Saturday, July 5.

SUNDERLAND.—The Education Authority on Tuesday decided to advertise for competitive designs for permanent buildings for the Training College on the Ford Estate. Only local architects are to compete, and an assessor will be appointed.

ILLUSTRATIONS.

THOMAS COATS' MEMORIAL CHURCH, PAISLEY.— ST. MATTHEW'S CHURCH, EDINBURGH.

THESE churches are typical examples of some of the best ecclesiastical architecture designed by Mr. Hippolyte J. Blanc, R.S.A., F.S.A. Scot.

AN OLD STREET IN DOVER.—RUE EAU DE ROBE, ROUEN.

IN an etching an artist frequently expresses more of the appeal that architecture makes to him than in a pencil drawing or painting, and conveys something quite different to any photographic presentation. Hence we find an interest in reproducing this week etchings by Mr. Hy. G. Webb and Mr. Frank L. Emanuel for their subjective rather than objective expression.

BEVERLEY MINSTER, YORKS.—WROUGHT-IRON GATES IN NORTH CHOIR AISLE.

ALTHOUGH the North of England is not very rich in decorative metalwork, the wrought-iron gates in the north choir aisle of Beverley Minster are amongst the finest examples of eighteenth-century wrought-iron work that we have. The leaf work and scrolls are of flowing design and excellent craftsmanship, and, though numerous, do not make the design too heavy. The monograms in the centre of each gate are the initial letters of John of Beverley, one of the founders of the early English church at Beverley. The drawing was reproduced was contributed by "Alpha" to "The Architect" Measuring Club, and awarded a prize.

THE Bournemouth Town Council on Tuesday discussed a scheme for erecting a pavilion on the Belle Vue site at an estimated cost of £60,000. It was decided to ask the borough architect to submit plans for the final approval of the Council.

MODERN SYSTEMS OF STEEL SHEET PILING.

RANSOME INTERLOCKING STEEL PILING AND ITS APPLICATION FOR COFFERDAMS AND ALLIED CONSTRUCTIONS.

This system of steel piling is commonly known as the trough or corrugated form. The reason for this distinction will be appreciated by reference to the diagrammatical block shown in fig. 1, which illustrates what is termed the standard Type D Section. From this figure it will be seen that the section has been specially designed to include the following three fundamental points which are essential from an economical point of view:—

1. The section has been arranged so that the neutral axis passes through the centre, whilst at the same time the

parts. The weight of metal used in many cases has been badly distributed, so that it does not materially increase the strength of the pile, whilst in other cases an excess of weight which is in no way necessary has been employed, thereby counteracting the economic advantages which otherwise might have been obtained with the piling. In the case of the Ransome interlock care has been taken to provide ample metal to give efficiency and strength for all emergencies, whilst at the same time sufficient play has been allowed in the interlocking parts so that one pile may deviate in direction from its adjacent pile through any angle up to 30° . This freedom in the interlock enables the piling to be used round irregular or circular areas without any special pieces being necessary, and, further, it prevents any tendency for the piling to become jammed

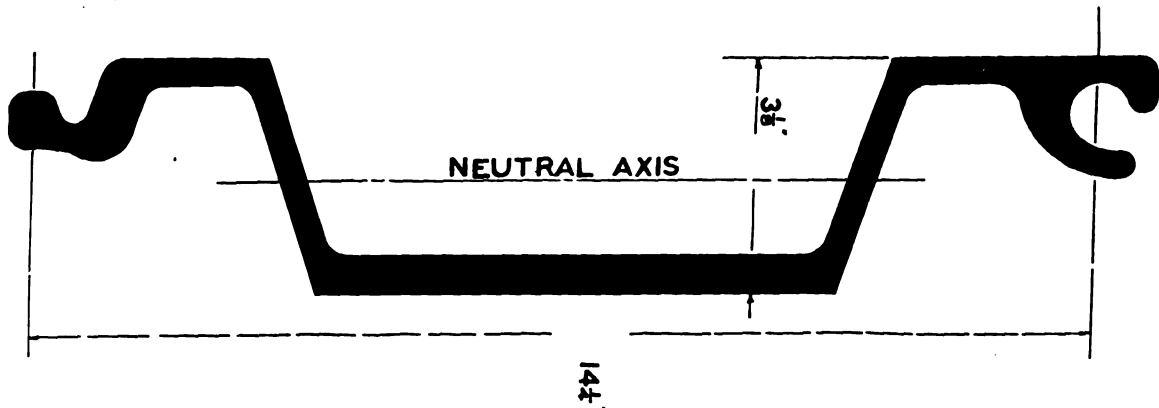


FIG. 1.

metal in the section is placed as far as possible away from the neutral axis. The practical result of this formation is that whilst the weight of the section is reduced to a minimum, a high lateral strength and large radius of gyration are obtained. The lateral strength is of great value in resisting pressure, whilst the large radius of gyration gives the pile strength as a column, thereby preventing distortion and whip during the process of driving.

2. The section has been designed so that when interlocked and in position the face of the piling offers a flat

in the interlock during driving by reason of any slight deviation which might accidentally occur.

In connection with the strength of the interlock of the Ransome system of piling, it is interesting to note that although the piling has been used under severe conditions in lengths up to 48 feet, no failure of any description has ever occurred in the interlock. The interlock also is rolled in one piece with the pile itself, so that driving of the section is simplified and facilitated.

Generally speaking, the practical results of the Ran-

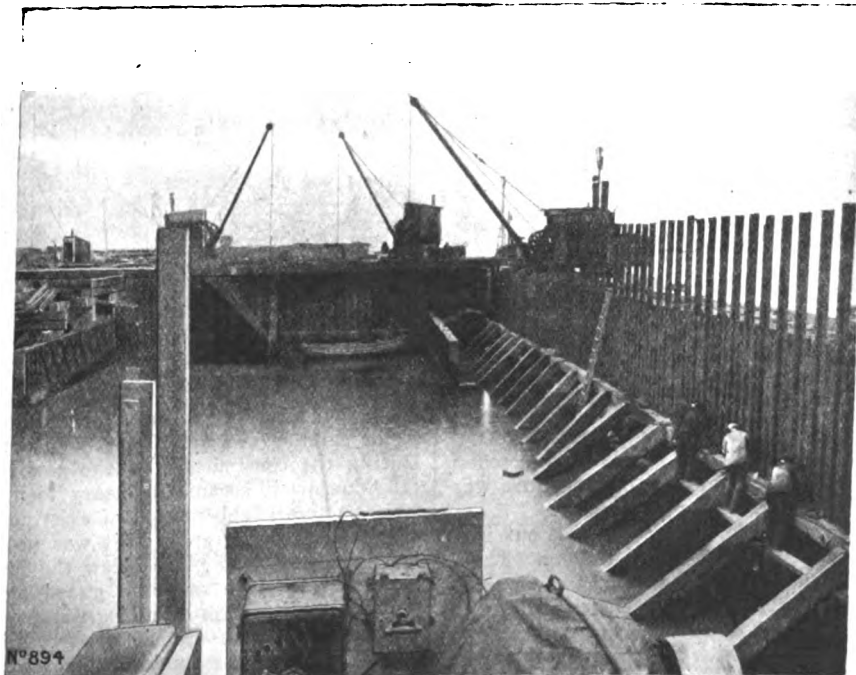


FIG. 2.

flush surface which will naturally come into contact with the walings used for strutting purposes, it being immaterial on which side of the piling when interlocked the walings are placed.

3. Very particular attention has been given to the design of the interlock. There are sections of steel piling, especially the earlier types, where an abnormal weight of metal has been used in the formation of the interlocking

some system may be summed up in the following words: Owing to the trough or corrugated form of the section, one ton of the piling covers an exceptionally large area when interlocked for the strength obtained. It should here be noted that when comparisons are being made between relative costs of timber and various steel sections for the construction of dams, the only true first-cost comparison is the price of the material per square foot or per square

B

yard of net area covered interlocked. This remark applies especially to steel sections. It may be, for instance, that two distinct systems of steel piling are obtainable at exactly the same price per ton, whereas a ton of the one system will cover only 50 square feet when interlocked. A ton of the second system may cover 80 square feet when interlocked, so that from economic considerations it will be appreciated that the most advantageous piling to use is the one in which the unit weight covers the greatest area.

With reference to the practical application of the Ransome system of piling, brief comments regarding the works at the present time being carried out may prove of interest, as they illustrate the wide range of adaptability and some of the advantages which can be obtained with this method of piling.

In fig. 2 we have a general illustration of the Ransome system of piling in use at the present time at the Rosyth Naval Base, where the contractors, Messrs. Easton Gibb & Son, Ltd., are carrying out works of great importance on behalf of the British Admiralty. In the case of the dam illustrated piles each 45 feet long were used, these, when finally in position, withstanding a head of water of about 20 feet. The dam is of particular interest, as it was used to form the closing structure shutting off from the Firth of Forth a large area of submerged land which has been reclaimed for purposes of dock construction. Until all

case the piles were each 48 feet long—the longest length of steel pile which we believe has ever been driven in one piece. To form the dams it was necessary for the piles to penetrate through a strata of 15 feet of Thames ballast into London clay beneath the same, and notwithstanding this difficult drive, it will be appreciated from the photographs that the pile tops remained in extremely good condition, whilst at the same time the dams are perfectly watertight, no caulking beyond a small amount of fine ash deposited on the water-side having been necessary. Some of the difficulties to be encountered during the construction of these dams will be realised from the fact that they are placed in position to withstand a head of water of 28 feet. This depth of water was present during the whole period of formation, so that it was necessary for all the walings and struts to be placed into position under water by divers. A further point of interest in connection with this piling work is that during the last few days, after having been in position for a period of nearly five months, some of these piles were withdrawn. After withdrawal, despite extremely hard driving, the piles were practically equal to new, demonstrating the possibility which is claimed for the system that with fair treatment the piling may be used repeatedly for almost an indefinite period.

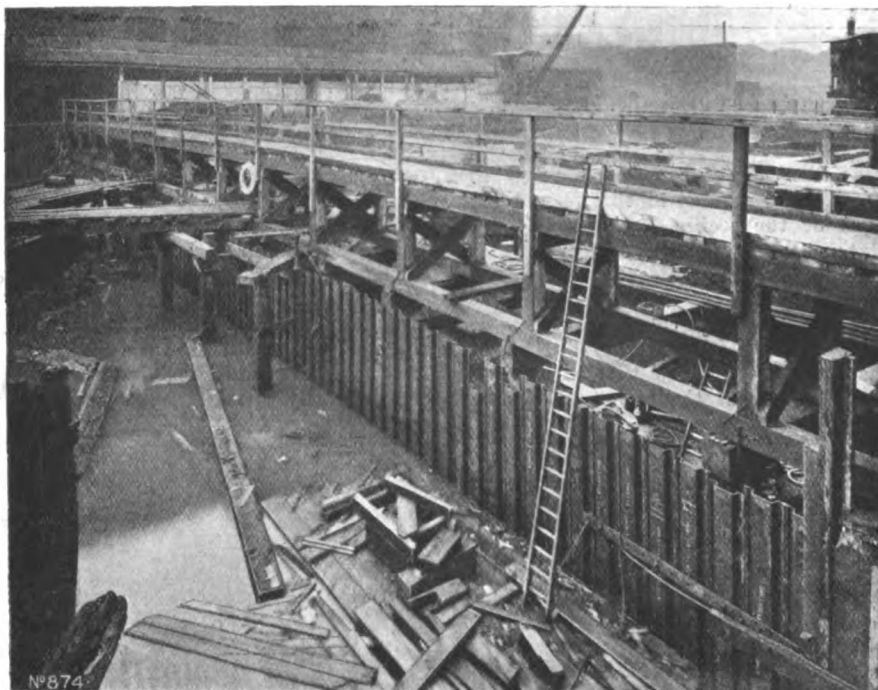


FIG. 3.

arrangements were complete for shutting this enclosed area off from the tidal waters of the Firth of Forth it was necessary to allow access for the tidal water to flow to and from the enclosed area. It was at the same time necessary that the construction of the steel dam should be proceeded with, and an extremely ingenious method of procedure was therefore adopted, which is briefly as follows:—

Every second pile driven to form the dam was cut into two pieces, each piece being 22 feet 6 inches long. Then, until it was desired to finally close the dam, the top half of these alternate piles was raised, as is clearly shown in fig. 2. This had the effect of converting the dam into a tremendous sluice gate through which the tidal water passed inwards and outwards with the rise and fall of tide. Then, when everything was ready for finally closing the dam, the water was allowed to recede with the tide, and before the return of the tide the top half of the alternate piles, which had been left raised, was driven home, and in this way the whole dam was rapidly closed.

Another interesting construction with the Ransome system of piling is also illustrated in fig. 3. These photographs show piles at the present time in use in the Western Dock, London Docks, where the contractors, Messrs. Holloway Bros. (London), Ltd., are carrying out extensive works for the Port of London Authority. In this

As distinct from extensive dock works such as those described above, it may be noted that the Ransome system of piling has proved itself of advantage for works of a much smaller character, although of equal importance. During the construction of the new main drainage system for Glasgow it became necessary to make extensive excavations in the neighbourhood of existing buildings. Owing to the nature of the ground, it was necessary to ensure that no settlement took place below the footings of the existing buildings, and in order to guard against this possibility the Ransome system of piling was used to form a rectangular box, and the system answered in every way to the satisfaction of the engineers and contractors.

Another instance of the adaptability of the system is illustrated in figs. 4 and 5. These photographs show the section employed for constructing in the bed of the River Ouse near Bedford some large new sewer pipes. On this contract also the piling is being withdrawn and used again.

Another instance of the adaptability of the system for all classes of constructional work in the presence of water is that afforded by the work which is being carried out at the present time in the reconstruction of Warrington Bridge. In this case the contractors, Messrs. Alfred Thorne & Sons, are with one consignment of piling forming

a number of cofferdams for the purpose of excluding the river during the construction of the new bridge foundations.

From the preceding remarks we think it will be appre-

quence mysteriously disappear in the way that timber has a reputation for disappearing. Finally, even though steel piling may have been in use for a number of years, it always has a value at the very least equal to the value

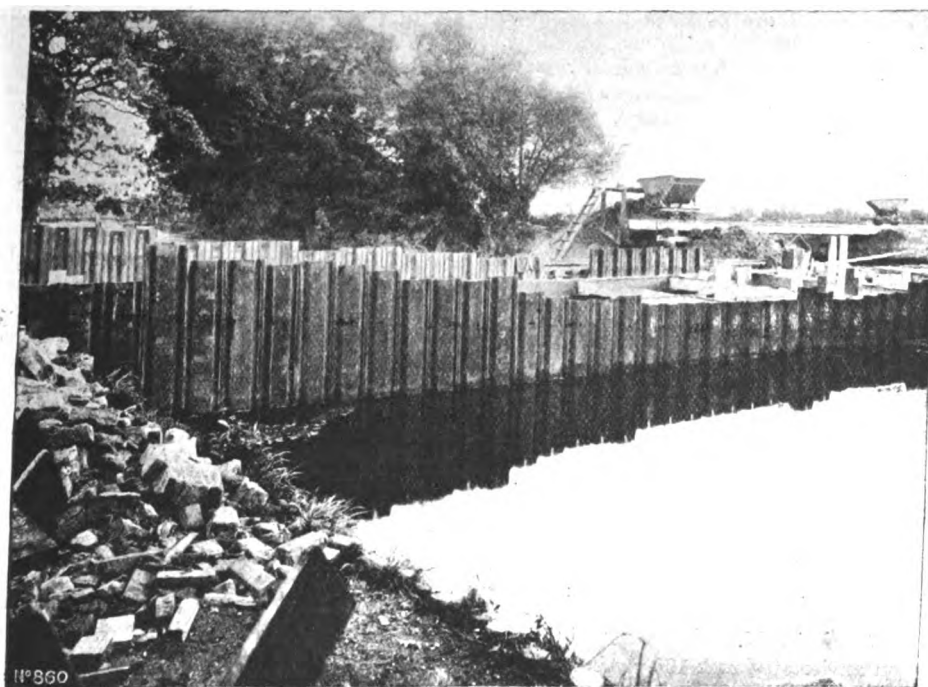


FIG. 4.

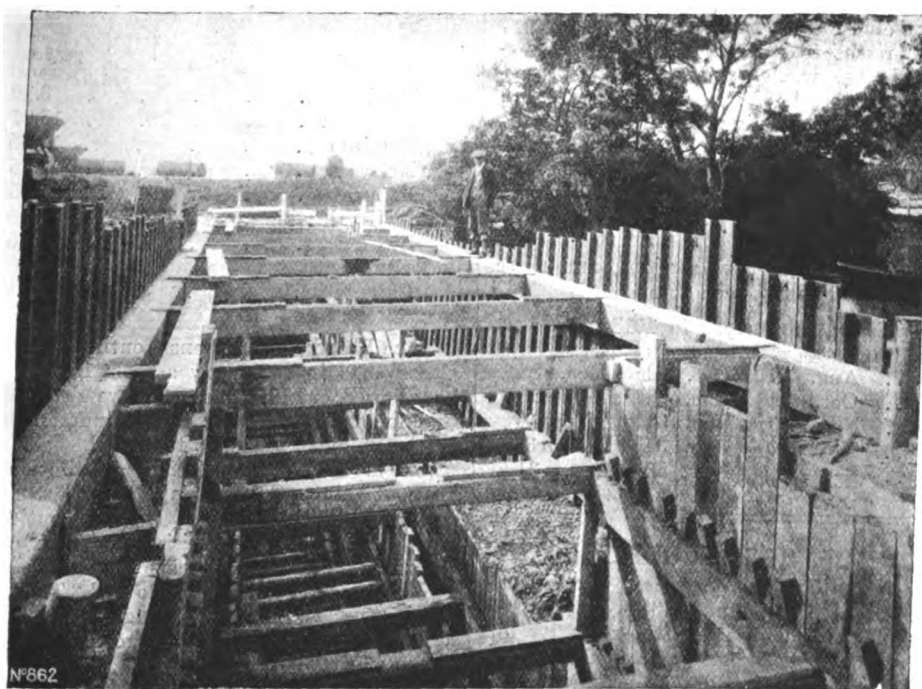


FIG. 5.

ciated that in a general way, provided a steel-pile section possessing, as every section should possess, comparatively light weight with high strength is selected, great economic advantages can be secured in comparison with timber. There is: (1) The initial cost of the material, which, especially when long lengths are required, is greatly in favour of steel; (2) the reduced resistance to penetration which is obtained by the use of steel in comparison with timber, this feature facilitating driving; (3) the possibility of withdrawal after use and repeated use; (4) the fact that an efficient steel-pile section is perfectly watertight without caulking or clay puddle; (5) the saving effected by the possibility of reducing strutting to a minimum; (6) the possibility with a system such as the Ransome of piling round irregular areas without in any way affecting the efficiency of the interlock; (7) the fact that steel piling, unlike timber, cannot be readily sawn up and as a conse-

quence mysteriously disappear in the way that timber has a reputation for disappearing. Finally, even though steel piling may have been in use for a number of years, it always has a value at the very least equal to the value

(To be continued.)

R.I.B.A. EXAMINATIONS.

THE FINAL: ALTERNATIVE PROBLEMS IN DESIGN.

Instructions.

1. The drawings, which should be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9 Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and his name and address and the name of the school, if any, in which the drawings have been prepared must be attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the student that the design is his own work, and that the drawings have been wholly executed by him. In the preparation of the design the student may profit by advice.

4. Drawings for subjects (a) are to have the shadows projected at any angle of 45° in line, monochrome, or colour. Drawings in subjects (b) are to be finished as working drawings. Lettering on all drawings must be in a clear scholarly character.

Subject X.

(a) A Classical Villa situated in wooded country for a bachelor who has a small but valuable collection of antique sculpture; $\frac{1}{8}$ -inch scale and $\frac{1}{2}$ -inch drawings to show both the villa and the gardens.

(b) A Pier at a First-class Watering Place. Drawings required: $\frac{1}{8}$ -inch scale drawings of the general scheme, with a $\frac{1}{2}$ -inch scale detail showing the construction of the pier and of any pavilion which may be on it.

Subject XI.

(a) A Monumental Tower with a large clock to be built to commemorate the adoption of the meridian of Greenwich throughout the world. Scale of drawings to suit the size of the scheme, but to include one detail drawing.

(b) A Country Club for 300 members in a large provincial town on a corner site, 75 feet wide by 150 feet deep, bounded by two main roads. The building can only extend back half the depth of the site, the remainder of which is to be treated as a formal garden. Drawings required: $\frac{1}{8}$ -inch scale and $\frac{1}{2}$ -inch.

Subject XII.

(a) A Lighthouse on an isolated rock 100 yards from the entrance to a naval harbour. Scale of drawings to suit the size of the scheme, but to include one detail drawing.

(b) A Golf Club House. To contain entrance hall, porter's box and telephone, small room for secretary and committee meetings; club-rooms; verandah or balcony, facing links; dressing-rooms to contain 350 lockers; lavatories, baths, shower baths, w.c.'s, and urinals; dining-room and servery; kitchen, scullery, larders, pantry, stores, wine, beer, mineral waters, coats, knives and boots; heating chamber and drying-room; billiard-room (two tables) (card-room optional), bar; servants' hall; stewards' quarters, sitting-room, two or three bedrooms, &c.; caddies' room, with caddie-master's room adjoining; w.c. and urinals, and workshops.

Drawings required: Two plans, two sections, and three elevations to $\frac{1}{8}$ -inch scale, also one $\frac{1}{2}$ -inch detail.

Dates for Submission of Designs in 1913-14.

	Subject X.	Subject XI.	Subject XII.
United Kingdom ..	Aug. 31	Oct. 31	Dec. 31
Johannesburg ..	Oct. 31	Dec. 31	Feb. 28
Melbourne ..	Nov. 30	Jan. 31	March 31
Sydney ..	Nov. 30	Jan. 31	March 31
Toronto ..	Sept. 30	Nov. 30	Jan. 31

VENTILATION OF LEEDS SCHOOLS.

LAST February, Mr. James Graham, Secretary for Education in Leeds, issued a Memorandum on the question of open-air schools, in which, remarking that the necessity for such schools arose from two main causes—a tainted heredity predisposing the child to debility, and bad environment—he observed, after an allusion to unhealthy homes:—

The ventilation of the schools, however, lies within the province of the Education Committee, and the teachers can exercise a very wide influence in helping to remove any tendency to aggravate physical weakness in school children.

It cannot be said that the teachers in the Leeds schools do not understand the elementary principles of hygiene, and the value of fresh air and cleanliness to health; but in too many cases they do not put into practice the knowledge they possess.

During recent years a great improvement in the ventilation of the class-rooms of the schools has been noticed, and now the greater proportion of the teachers are paying attention to this important matter; but there is still a minority of teachers who are, it would seem, afraid of fresh air, and this number is sufficiently large to have a considerable effect in aggravating the physical unfitness of the weaker children in the schools. If to a badly ventilated home you add a badly ventilated school, there is an accumulative influence at work which must produce very serious physical defects in the children.

This Memorandum has for some time past occupied the attention of the Leeds Teachers' Association (N.U.T.), who have, according to the *Yorkshire Post*, just issued a reply, in which they say the statements "with regard to the neglect by teachers to utilise the means provided to maintain the air in their class-rooms in a non-injurious condition seem to us to call for further comment. The charge," they continue, "is one of extreme gravity. That teachers, not ignorantly, but through prejudice and a desire to avoid slight personal discomfort, inflict upon their pupils conditions which aggravate their physical defects, is a charge not only of professional inefficiency, but of callous inhumanity. That even a considerable minority of the teaching staff of the city can be truthfully charged with such conduct we, from our intimate personal knowledge of the schools, resolutely deny. We venture to claim that no other body of citizens has shown evidence of so great an interest in the physical condition of the children or such continuous voluntary effort to promote its improvement. No such evidence is adduced to support such a charge. A single visit to one department of one school can scarcely be quoted as evidence in support of a statement likely to be understood as of fairly general application. We maintain that, with extremely few exceptions, the teachers of the city utilise to the full the insufficient and inefficient apparatus which exists in the schools for the purpose of ventilation."

While not denying that the class-rooms are overcrowded, and that the air is injurious to all except the most robust, the reply says that the fault is not with the teachers, but with the regulations of the Board of Education, which permit the accommodation to be calculated on an utterly inadequate allowance of 10 sq. ft. of floor space per child. That in this respect our schools compare very unfavourably with those of other countries, the following tabulated statement of the regulations or customs prevailing abroad will show:—

Country.	Floor Area per Scholar in Square Feet.	Air Space per Scholar in Cubic Feet.
England	8.10	80.100
Denmark	13.77	141
Belgium	10.76	159
Norway	11.15	159.176
France	13.16	177
Switzerland	15.16	180.187
Sweden	15.16	180.187
United States	18	216
Canada	20	240

The Board's regulations (continues the statement) that in class-rooms in secondary schools 16 sq. ft. per head must be allowed, while 30 sq. ft. are demanded for art rooms and laboratories, are a tacit admission that the allowance in the primary school is too small.

It is urged that efficient ventilation shall be secured without perceptible draughts. Teachers weekly receive letters complaining not of too little but of too much "open window." "If ventilation is to be carried on without draughts many Leeds schools would provide an excellent object-lesson on how not to do it." The present day heating apparatus, it is said, though securing a more uniform temperature throughout the rooms, has little or no ventilating effect.

Dealing with the difficulties of the open window, the reply says that even when the open window is desirable the position of the school often for very practical reasons deters the teachers from its use. Many of the schools are situated in close proximity to the main roads of the city, along which tramcars and wheeled vehicles are constantly passing with such noise that with open windows oral teaching becomes an impossibility. Under such circumstances also clouds of injurious as well as disagreeable dust are swept in through open windows. The position prohibits the use of the playground for class lessons, as the Memorandum suggests, since no semblance of privacy can be secured. Some of the schools are so nearly situated to manufacturing premises, which produce injurious or offensive odours and vapours, that to open the windows freely means generally to change a vitiated atmosphere for one more harmful and noxious.

"Although it may be conceded," concludes the reply, "that ordinary primary schools, 'properly planned and ventilated,' could approximate to the conditions obtaining in open-air schools, the teachers recognise that with many of the existing buildings, however great their desire for the physical well-being of the children, or their love of fresh



CARTOON OF WINDOW AT EYAM PARISH CHURCH, DERBYSHIRE.—Designed and executed by Mr. ARTHUR A. ORR.

air, such a desirable consummation is a practical impossibility. They welcome fair criticism and suggestion, but, believing that all but quite an inconsiderable number do 'utilise fully the means of ventilation,' they strongly resent being loaded with the results of the faulty construction of schools for which they are in no way responsible."

DEGREE COURSE IN ARCHITECTURE, SHEFFIELD UNIVERSITY.

At a meeting of the Court held on June 27 certain important modifications in the arrangements for the teaching of architecture in this University received final approval.

The Department of Architecture, which has been for the last six years in the Faculty of Applied Science, is now transferred to the Faculty of Arts, and in addition to the three years' course leading to the certificate in architecture, and the five years' course leading to the diploma, the Department now provides a five years' course leading to the degree of Bachelor of Arts, with honours in architecture.

Before commencing the course for this degree, candidates must pass, or obtain exemption from, the Matriculation Examination of the Joint Matriculation Board of the Northern Universities.

During the first year of the degree course students prepare for a special Intermediate Examination in the following subjects: 1, Latin; 2, English, French, German, or Greek; 3, Ancient, Mediæval, or Modern History; 4, History of Architecture; 5, Mathematics (Pure or Pure and Applied).

Thus in addition to the subject "History of Architecture" candidates for the degree must satisfy the examiners in four subjects in the Intermediate Examination in Arts. This is one of the highest standards of non-technical education required in an English School of Architecture.

During the second and third years the candidates prepare for the first part of the Degree Examination, the subjects of which are: 1, History of Architecture; 2, Ancient Art; 3, Applied Construction, including Sanitation; 4, Theoretical Construction and Laboratory Course in Mechanics; 5, Materials of Construction, including the Chemistry and Testing of Materials; and 6, Geometry and Perspective.

The second part of the Degree Examination is held at the end of the fifth year, papers being set in: 1, Applied Construction; 2, Theoretical Construction; 3, Materials of Construction; 4, Sanitation; 5, Specifications, Estimating and Professional Practice; 6, Design; 7, Principles of Architecture.

Measured drawings, designs, and drawings of construction prepared during the course must be submitted and approved at each part of the examination.

During the first three years candidates for the degree work full time at the University, but during the last two years most of their daytime must be spent in the office of an architect. The course is thus intended to supplement, rather than to take the place of, office training.

Important points in this degree course are: 1, The high standard required in non-technical subjects; 2, the careful study required not only in the history of architecture and design, but also in such subjects as Applied and Theoretical Construction, Materials, Sanitation, &c.; 3, candidates must produce evidence of practical training in the office of an architect; 4, candidates must attend a certain number of vacation courses, and thus spend from eight to twenty-two weeks in the study of buildings of architectural interest.

Students who have not passed the Matriculation Examination may take the Certificate and Diploma Courses, but will be required to show that they are qualified to benefit from them.

Students who are unable to take a complete course may,

by arrangement, take any part or parts approved by the Lecturer.

Further particulars of the work of the Department of Architecture may be obtained from the Lecturer, Mr. W. S. Purchon.

DEPARTMENT OF ARCHITECTURE DIPLOMA EXAMINATIONS, JUNE 1913.

The examinations held at the end of the five years' course for the diploma have resulted as follows: First-class Diploma: J. H. Odom and H. B. Leighton, junr.

The external examiner was Mr. Halsey Ralph Ricardo, F.R.I.B.A.

THE TOWN PLANNING OF GREATER LONDON.

On July 12, 1912, a letter, of which a copy is appended (marked "A"), was sent to the Prime Minister, signed by the Presidents of the Royal Institute of British Architects, the Royal Academy, the Surveyors' Institution, the Institution of Municipal and County Engineers, and the Institution of Civil Engineers.

The Prime Minister promised to give the matter his consideration. On May 24, 1913, a letter, of which a copy is appended (marked "B"), was sent to the Prime Minister, signed by the Presidents of the Royal Institute of British Architects, the London Society, the Surveyors' Institution, the Institution of Civil Engineers, and the Institution of Municipal and County Engineers.

The Prime Minister kindly consented to receive a deputation representing these bodies on Thursday, July 3, at 4 P.M., in his room at the House of Commons.

A limited number of representatives of the Press were present. The deputation was headed by Mr. Reginald Blomfield, A.R.A., President of the R.I.B.A., and the other representatives of the R.I.B.A. included Sir Aston Webb, R.A., Mr. Raymond Unwin, Professor Beresford Pite, Mr. H. V. Lanchester, Professor S. D. Adshead (Professor of Civic Design in the University of Liverpool), Mr. W. H. Seth-Smith, and the Secretary (Mr. Ian MacAlister). The following gentlemen were also present representing the Surveyors' Institution: Sir Alexander Stenning, Mr. H. Chatfield Clarke, and Mr. Leslie Vigers.

Representing the Institution of Civil Engineers: Sir John Wolfe Barry and two other representatives.

Three representatives of the Institution of Municipal and County Engineers.

Three representatives of the London Society.

THE PLANNING OF MAIN ARTERIAL ROADS IN GREATER LONDON.

The Prime Minister also received on July 3 a deputation from the local authorities in the Greater London area. This deputation submitted the following resolution, which was passed unanimously at a Conference convened by the National Housing and Town Planning Council, and held on May 27 and 28 last at the Westminster Palace Hotel:—

"That this Conference begs to represent to the Prime Minister and the President of the Local Government Board that the Public Departments which can, by means of their powers, co-operate and assist in the framing of town planning schemes and the provision of arterial roads may be asked to confer with the local authorities in Greater London collectively, and give their assistance in every way possible in preparing town planning schemes for that area, and that the Prime Minister and the President of the Local Government Board be asked to receive a deputation from this Conference to urge more explicitly the necessity for such consultation."

This resolution was passed by a Conference, at which the majority of the local authorities in the Greater London area were represented.

The urgency of the case presented by the deputation can be realised by the fact that already town planning schemes are in preparation (or in the preliminary stages) throughout the great belt of unbuilt-on land in Greater London.

"A."

July 12, 1912.

The Right Hon.

H. H. Asquith, P.C., M.P.,
Prime Minister.

Sir,—A Conference convened by the Royal Institute of British Architects consisting of representatives of:

The Royal Institute of British Architects,
The Royal Academy,
The Institution of Civil Engineers,
The Surveyors' Institution,
The Institution of Municipal and County Engineers,

who are deeply interested in the development of Greater London, has been considering the serious position which is likely to arise owing to the fact that numerous town planning schemes are being prepared for the districts surrounding London without any power existing to co-ordinate these different schemes, and to secure the carrying out by these schemes of the recommendations as to main roads which have been made both by the Royal Commission and by the Traffic Department of the Board of Trade in their valuable reports.

These town planning schemes have to be approved by the Local Government Board, but they come singly, and the Board has no power to guarantee to any local authority that if it provides a portion of a main road running through its area the remainder of that road will be carried out by the abutting authorities, nor has the Board any power to apportion the cost of such a main road equitably among these different authorities.

At present the authorities concerned are so numerous and disconnected that concerted action is hardly possible. The different bodies having rights and powers with regard to the making and planning of roads within the area of Greater London are as follows:—

The London County Council possess exclusive powers under the Town Planning Act within the Administrative County of London, and without their consent no joint body can be set up under Clause 55 of the Act.

The Local Government Board have power to supervise, amend, and approve action taken by the local authorities under the Town Planning Act; power to call upon the L.C.C. and other local authorities to prepare a town planning scheme.

The London Traffic Branch of the Board of Trade have power to spend a certain sum in studying traffic problems and issuing reports upon them.

The Development and Road Board have power under the Development and Road Improvement Funds Act (a) to make advances to highway authorities for improving existing or making new roads; (b) to construct and maintain any new roads.

The Road Board acts through

The Treasury, who, before approving the construction of a new road, must consult the Local Government Board, and also be satisfied that notice of intention to construct has been sent to every highway authority affected.

Greater London.

Outside the L.C.C. area town planning powers under the Act are possessed by—

- (a) The Councils of all Boroughs.
- (b) The Councils of all Urban Districts.
- (c) The Councils of all Rural Districts.

Or a total of some seventy or eighty different authorities.

It will therefore be evident that the consistent, dignified, and practical development of Greater London is a subject of great and pressing difficulty. No authoritative expert body exists empowered to deal with the main roads of the Metropolis as suggested by the Royal Commission, to co-ordinate the work of the different local authorities, and secure the planning and construction of the main arterial roads that are required to accommodate the traffic of Greater London.

The Conference of Institutions interested in the subject is sure that the importance of the proper development of London is present to the mind of his Majesty's Government, and requests you to receive a small deputation to express its view that it is necessary to co-ordinate existing bodies for the special purpose of creating a system of main roads for Greater London.

We have the honour to be, Sir,

Your obedient servants,

(Signed) REGINALD BLOMFIELD,

President of the Royal Institute of British Architects.

(Signed) EDWARD J. POYNTER,

President of the Royal Academy

(In support of the Royal Institute of British Architects).

(Signed) EDWARD G. STRUTT,

President of the Surveyors' Institution.

(Signed) R. J. THOMAS,

President of the Institution of Municipal and County Engineers.

(Signed) W. C. UNWIN,

President of the Institution of Civil Engineers.

"B."

May 24, 1913.

The Right Hon.

H. H. Asquith, P.C., M.P.,
Prime Minister.

Sir,—We beg to draw attention to our letter of July 12, asking you to be good enough to receive a deputation and to hear its views as to the necessity of either appointing some central authority or conferring the necessary authority on some existing body to control the development of a system of main roads for Greater London.

We venture to point out that the action, which it is urgent should be taken at once to secure the routes of these main roads, need not entail a large present outlay, but would have the effect of avoiding a very heavy expenditure when, at some future date, the carrying out of the scheme of roads has to be taken in hand.

We wish to take the opportunity of emphasising the extreme urgency of this matter. A very large number of town planning schemes for Greater London are now maturing, which include areas traversed by some forty out of 120 miles of new main roads recommended by the Traffic Department of the Board of Trade, and we beg, therefore, to press for an interview at the earliest possible date.

We have the honour to be, Sir,

Your obedient servants,

President of the Royal Institute of British Architects.

President of the Institution of Civil Engineers.

President of the Surveyors' Institution.

President of the Institution of Municipal and County Engineers.

President of the London Society.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

The annual summer excursion was made to Stratford-on-Avon on the 26th ult.

The party included Mr. E. R. Sutton (President) and Mrs. Sutton, Mr. H. Gill (Vice-President), R. Evans, A. Eaton, F. W. Gregory, W. R. Gleave, Mr. and Mrs. E. H. Heazell, C. B. Sherwin, W. H. Taylor, Mr. and Mrs. F. M. Royle, A. G. Royle, Mr. and Mrs. J. E. Webb, R. Spencer, J. Woollatt.

Holy Trinity Church, of which the graceful spire is so marked a feature of the charming river landscape, was first inspected. The various architectural features were examined, and the register containing the entry of Shakespeare's birth, and the well-known monumental effigy on the north wall of the chancel. The grave is a few feet from the wall, marked by a slab on which are the following lines:—

Good Friend For Jesu's Sake Forbeare,
To Digg The Dust Enlosed Heare:
Blest Be Ye Man Yt Spares Thes Stones,
And Curst Be He Yt Moves My Bones.

The Headmaster, Mr. Cornwell Robertson, kindly conducted the party over the old Grammar School, which was originally founded in 1482, and with the chapel adjoining formed part of the original Ancient Guild of the Holy Cross. The school, still in use, is a fine example of half-timbered work. The Guild Chapel is interesting but admittedly spoilt by a gallery and interior "restoration" done about the eighteenth century.

One of the most quaintly carved and interesting half-timbered houses is Harvard House, the home of the mother of John Harvard, who founded the famous American University of that name, and a contrast to it is Miss Marie Corelli's house, with its front a mass of flowers.

After lunch at the Shakespeare Hotel, built in the fourteenth century, Shakespeare's birthplace was visited. The walls, ceiling, and windows are covered with the names of former visitors, including Sir Walter Scott, Thomas Carlyle, &c.

Visitors' books are now provided, and up till recently there were more signatures in the American visitors' book than in the English one. The garden contains flowers, trees, and plants mentioned by Shakespeare.

A visit to Stratford is not complete unless Anne Hathaway's Cottage has been seen. This is about a mile from Stratford, and is a thatched farmhouse of the Elizabethan period, containing old furniture and fittings, such as old

wooden and pewter platters, four-poster bedsteads, and rush mattresses. It was the early home of Shakespeare's wife.

The Memorial Theatre, erected on the banks of the Avon, was then inspected. The picture gallery contains a magnificent collection of paintings by various famous artists, and the library a valuable Shakespearean collection of books.

The gardens attached to the house which Shakespeare bought, and in which he died, are beautifully laid out and were much admired. Only the foundations of the house now remain.

The Society were favoured, as usual, with fine weather, and a most interesting and enjoyable day was spent in the district claimed as the home of England's greatest poet.

ILLUMINATING ENGINEERING SOCIETY.

THE Council of the above society is now engaged in considering the programme for the next session. Members who are willing to read papers are invited to notify the hon. secretary as soon as possible, and to send in contributions early in the vacation.

A list of some suitable subjects (which, however, is issued as a suggestion only, and is not exhaustive) is given below.

The Council invite any further suggestions as to the future work of the Society, or any subjects which it is suggested might receive special attention during the next session.

Abbreviated List of Subjects on which Papers are invited.

- (1) Fixture design: the compromise between artistic and illuminating principles.
- (2) Decorative lighting and illuminating engineering from the standpoint of artistic effect and architectural principles.
- (3) The measurement of daylight and its application by the architect to designing window-space, and the access of natural light to interiors. The value of photometry in deciding ancient light cases.
- (4) Simple methods of calculating beforehand the distribution and intensity of illumination in interiors.
- (5) The benefits of good illumination from the insurance standpoint, and as a means of preventing accidents.
- (6) Specific problems in the lighting of factories and workshops.
- (7) The production of light of various colours, and the best means of modifying the spectra of artificial illuminants so as to resemble that of daylight.
- (8) Problems encountered in the lighting of museums, picture galleries, &c.
- (9) The decorative lighting of parks, avenues, and flower gardens, fêtes, &c.
- (10) The lighting of billiard tables.
- (11) The artificial illumination of athletic grounds, tennis courts, skating rinks, bowling alleys, &c.
- (12) Country-house lighting by private electrical installations, by acetylene, or by petrol air gas and incandescent oil vapour.
- (13) Theatre lighting: illumination on the stage and its use to produce scenic effects, &c.

ANCIENT MONUMENTS CONSOLIDATION AND AMENDMENT BILL, 1913.

In our issue of June 6, p. 577, we printed a report by the Parliamentary Committee of the London County Council on this Bill, which has been introduced into the House of Lords by the Earl Beauchamp (First Commissioner of Works), and has passed Committee stage in that House. The Parliamentary Committee have prepared the following supplementary report:—

In addition to powers for the Commissioners of Works the Bill proposes to empower a local authority to purchase by agreement or to accept the gift of or to become the guardian of any ancient monument in, or in the vicinity of its area. Under the existing law the Council is the local authority throughout the administrative county of London in regard to the preservation of ancient monuments, and the Bill in consolidating the existing law preserves the Council's position. An amendment has now been put down for report stage of the Bill by Lord Ritchie of Dundee, providing that the City Corporation shall be an authority for the purposes of the Bill within the City of

London and the vicinity thereof. The Local Government Committee are of opinion that the division of jurisdiction is undesirable and that the amendment should be opposed. They suggest further that, if the amendment is incorporated in the Bill, it should be made clear that the Council's jurisdiction throughout the whole of the administrative county of London is not affected, and that the expenses of the Council shall continue to be charged to the general county account. In view of the special nature of the subject dealt with, we do not think that the Council would be well advised to oppose the amendment provided that the Council's own jurisdiction and powers in the administrative county of London are preserved, and we submit a recommendation accordingly.

A further point arises in connection with clause 18, which provides that the Council of a borough or a district may, with the consent of the Local Government Board, relax by-laws in force with respect to new streets and buildings in order to permit of the erection of buildings of a style of architecture in harmony with other buildings of artistic merit existing in the locality. This clause does not apply to London, but it may be pointed out that the Council has at the present time dispensing powers under the London Building Act, 1894, in the case of the restoration of buildings of architectural or historical interest constructed otherwise than in accordance with the provisions of the Act, and also a general power of dispensation from by-laws made under section 16 of the Metropolis Management and Building Acts Amendment Act, 1878. Lord Ritchie has put down a further amendment to provide that the City Corporation shall have similar powers of relaxation within the City of London to those given under the clause to councils of borough and districts. The Building Acts Committee state that it appears probable that the proposed amendment would enable the Common Council, with the consent of the Local Government Board, to relax the by-laws, made under section 202 of the Metropolis Management Act, 1855, relating to new streets or buildings, and new building by-laws which may hereafter come into force. The by-laws made under the Act of 1855 and the London Building Acts are, with few exceptions, administered by the Council throughout the administrative county of London, and the Building Acts Committee are therefore of opinion that, in order to prevent a conflict of authority in the City, the power of relaxation proposed to be granted to the Corporation should, if granted at all, be restricted to those by-laws which it already administers. The Local Government Committee considers the proposed amendment objectionable from a local government point of view. We submit a recommendation with the object of limiting the powers as suggested. We recommend:—

"That, in the event of amendments being moved to the Ancient Monuments Consolidation and Amendment Bill, 1913, to provide that the City Corporation shall be a local authority for the purposes of the Bill and shall have the same power as the council of a borough or district of relaxing local by-laws so as to allow of the erection of buildings of a style of architecture in harmony with other buildings of artistic merit existing in the locality, steps be taken to secure that the Council's jurisdiction and powers throughout the whole of the administrative county of London in respect of ancient monuments is preserved, and that the expenses of the Council shall continue to be charged to the general county account, and that the proposed power for the City Corporation to relax by-laws shall not apply to any by-laws administered in the City of London by the Council."

PICTURES AND DRAWINGS AT NO. 5 OLD BOND STREET, BY R. P. BONINGTON AND J. S. COTMAN.

AMIDST all the exhibitions of modern work, it is of interest to study some painting which transports us back three-quarters of a century or more—painting which is as far removed in touch and technique from the vogue of to-day as the present style of locomotion and the present vagaries of dress are different from the Georgian styles. And yet, again, how distinctive are the mannerisms of the two artists now under consideration? Richard Bonington—a youthful genius who, loved by the gods, died young—with his bright palette and finished technique; and John Sell Cotman, his elder contemporary, who was a formalist in style, and who was more concerned with depicting what he *thought* that Nature

presented to the eye than with any artistic method of presentation.

The result was that whereas the work of Richard Parkes Bonington is pleasant, both on canvas and in reproduction, John Cotman's paintings are to be preferred in the latter, when their harshness is toned down and their crudities are modified. Consider, in the first place, his "Dieppe Harbour"; this is such a missed opportunity for a picture where there is a fine panoramic effect, spoilt by the niggling, irritating treatment of the foreground buildings. And contrast this with its neighbour, "Fishing Boats," a sanguine sketch by Bonington, when the relative merits of the two artists are made apparent.

And "Dieppe Harbour" is one of the most favourable specimens of Cotman's works for comparative purposes. There are, however, two or three other studies by him that please us more. His "Farmyard with Church" is an excellent sepia study, with the light and shade well mingled, and it forms a satisfactory piece of composition.

"The Study of a Doorway" shows effective chiaroscuro, and "French Fishing Boats" is a good piece of work, though lacking in modulation. "Mount and Fort of St. Marion" is noticeable, with its proximate freedom from the harshness so characteristic of Cotman's work, whilst "A Shady Pool" and "A Normandy River" also merit attention. His architectural studies in general are unsympathetic.

But it is when we rivet our gaze on the works of Bonington that the pleasure derivable from the exhibition (provided by Mr. W. B. Paterson) is made manifest. This youthful genius betrays not only qualities of Art peculiar to himself, but also others, which we associate with Mr. J. M. W. Turner. His "Grand Canal, Venice," is as delightful and rhythmical as anything that the master gave us. "Coast Scene" (No. 48) is quite a gem, and this, too, may be said of No. 48, "Interior with Figures," with its preponderance of darks over lights, and its reminiscence of P. de Hooch, though lacking some of his brightness. "The Bank of a River" (No. 53), "On the Normandy Coast" (No. 5), and others are notable for their softness of touch and atmospheric fidelity. But we might continue our catalogue of praise with very little in the way of criticism of an adverse nature—it would never be carping. For the credit of John Cotman it is a pity that his works should be displayed, not merely side by side, but intimately mingled with those of Richard Bonington.

LANDSCAPES BY THE HON. W. J. JAMES, R.E., AT THE DOWDESWELL GALLERIES.

MESSRS. DOWDESWELL (of the well-known New Bond Street Galleries) customarily provide their patrons with undeniably meritorious exhibitions, but the two most recent *shows*—we refer to those by Alastair and the Hon. W. J. James—do not serve to maintain the high level of Art which we have hitherto associated with the house of Dowdeswell. With Alastair's work we are not here concerned, and will confine our attention to that by Mr. James. For a one-man show it is sufficiently ambitious in numbers, though not in effect.

It is not that there are not some really good works on exhibition, but there is a general air of incompleteness, of longings unsatisfied, of chances missed.

Of the eighty or so works shown, half are in water-colours, and the remainder are etchings. Of the former, we cannot regard with favour more than—not as many as—one-third, and of this proportion there are only three or four which really excel. "The Gullet" and "The Rede at Sunset" are two of the best; "Tramps" is a complete and effective study, though the tramps themselves are somewhat inconspicuous. "The Rede—Early Spring" is bright and harmonious in every respect, and "A Peaceful Valley" portrays a sunset sky with extreme cleverness. "A Fine Day in the North" also shows a remarkable sky well portrayed. "Carrara Mountains—Morning" is delightful, viewed from a short distance, and this extended view benefits some others of Mr. James' works.

But we feel constrained to point out that, despite these favourable criticisms, the praises are to an extent rather the resultant of comparative criticism than of absolute merit.

SIR ALFRED EAST, A.R.A., Hon. A.R.I.B.A., was on Tuesday last elected a Royal Academician. The artist was born at Kettering in 1849, and became an Associate of the Royal Academy exactly fifty years later. He received his art education at the Glasgow School of Art and the Ecole des Beaux-Arts, Paris.

ARCHITECTURE IN ST. PETERSBURG.

RUSSIAN architecture is little known in the rest of Europe. Historians go so far as to distinguish the Russian Byzantine style, with its fine domed churches, the style of the Vassili Bogeny—barbaric and eastern, as it is generally described—and the modern Russian architecture—"a slavish but unskilled imitation of the Renaissance original." While in the minds of the general public "the Russian style" stands for that peculiar product of the second half of the last century, which has been so much in view at different international exhibitions. But neither this latter style, conspicuous with its superabundance of "national" ornamentation of the "cock and towel" variety, which bears in Russia the name of "Ropett" (its chief populariser), embodying the worst features of the decadent Russian art of the time of its origin, nor the Russian forms as usually described by historians, could be rightly taken as giving a fair idea of the achievements of Russian architecture. The modern Russian writers unhesitatingly claim for their national architectural accomplishments of a standard which, in their opinion, can easily rival the most renowned edifices of the

nationalities, and often succeeding each other in constructing the same building, they produced a peculiar mixture, which gradually developed into the complete and definite style of what may be called the St. Petersburg Baroque. During the reign of Elizabeth, daughter of Peter the Great, the same style prevailed, brought to a degree of rare perfection by the work of one of the greatest of Russian architects—Rastrelli, junr. But it was Catherine the Great and her grandson, Alexander I., who really made St. Petersburg the pride of Russia. It is wonderful what tremendous interest these two Sovereigns took in beautifying their capital. Practically not one building, private or official, was allowed to be constructed without their personal assent. Both possessed exceptionally refined taste and great feeling for architectural ensemble.

The reign of Catherine brought a change of style. The rich and exquisite beauty of Rastrelli's works did not fully satisfy. Greater simplicity and severity were required, and it was the Romans from whom inspiration was now sought. An array of most brilliant architects gave expression to this tendency, enriching the city with a great number of magnificent buildings. Then during the reign of Alexander a



THE SMOLNY MONASTERY.—Count RASTRELLI, jun., Architect.

world; and, of course, the Ropett style, however popular and patronised it may have been, will never be able to put these achievements in the background. Throughout the whole of its history Russian architecture has been experiencing the influences of Europe. But these influences, reflected in Russia, acquired new and original forms, which make all the stages of Russian architecture, notwithstanding their close relationship with European developments, entirely and distinctly national. One of the greatest achievements of Russian architectural genius is shown in that so-called cosmopolitan city—St. Petersburg. The capital of Russia is like no other city in the world. Not only its origin among the impassable swamps, by the will of an all-powerful Czar, but the whole history of its growth and development reminds one of a fairy tale. It is not our object to give here a detailed review of this history, but some general statement is necessary in order to understand the modern tendencies of St. Petersburg's architecture.

When Peter the Great founded his capital in 1703 he invited to Russia a number of foreign builders. They were all repeating in St. Petersburg the Baroque style, at that time in general vogue in Europe; but, being of different

further development brought the builders to the Greek sources. Still greater simplicity, still greater constructional clearness were sought, and were found in the solemnity of the Doric style. To see what an astonishing beauty St. Petersburg presented in the reign of Alexander I., we need only to quote the opinion of a French contemporary who came to Russia with the army of Napoleon, and remained in the country after his compatriots had been driven out. This is what he said:—

"Je ne connais rien de comparable à la magnificence de Saint-Petersbourg; il y règne une *uniformité* de grandeur et d'élégance d'architecture qui n'existe nulle part en Europe. On se sent saisi de respect et d'admiration, en pensant au génie qui a conçu d'aussi grandes idées, qui les a fait exécuter avec une infatigable persévérance, et qui est enfin parvenu à réunir sur un seul point et au plus haut degré de perfection, tant de chefs d'œuvre de l'art répandus avec inégalité dans le reste de l'Europe." (L. V. Puibusque, "Lettres sur la guerre de Russie en 1812," &c. Paris, 1817.)

In an English edition of a series of engravings of St. Petersburg, published in London in 1815, it is stated: "It is particularly after having travelled in Prussia,

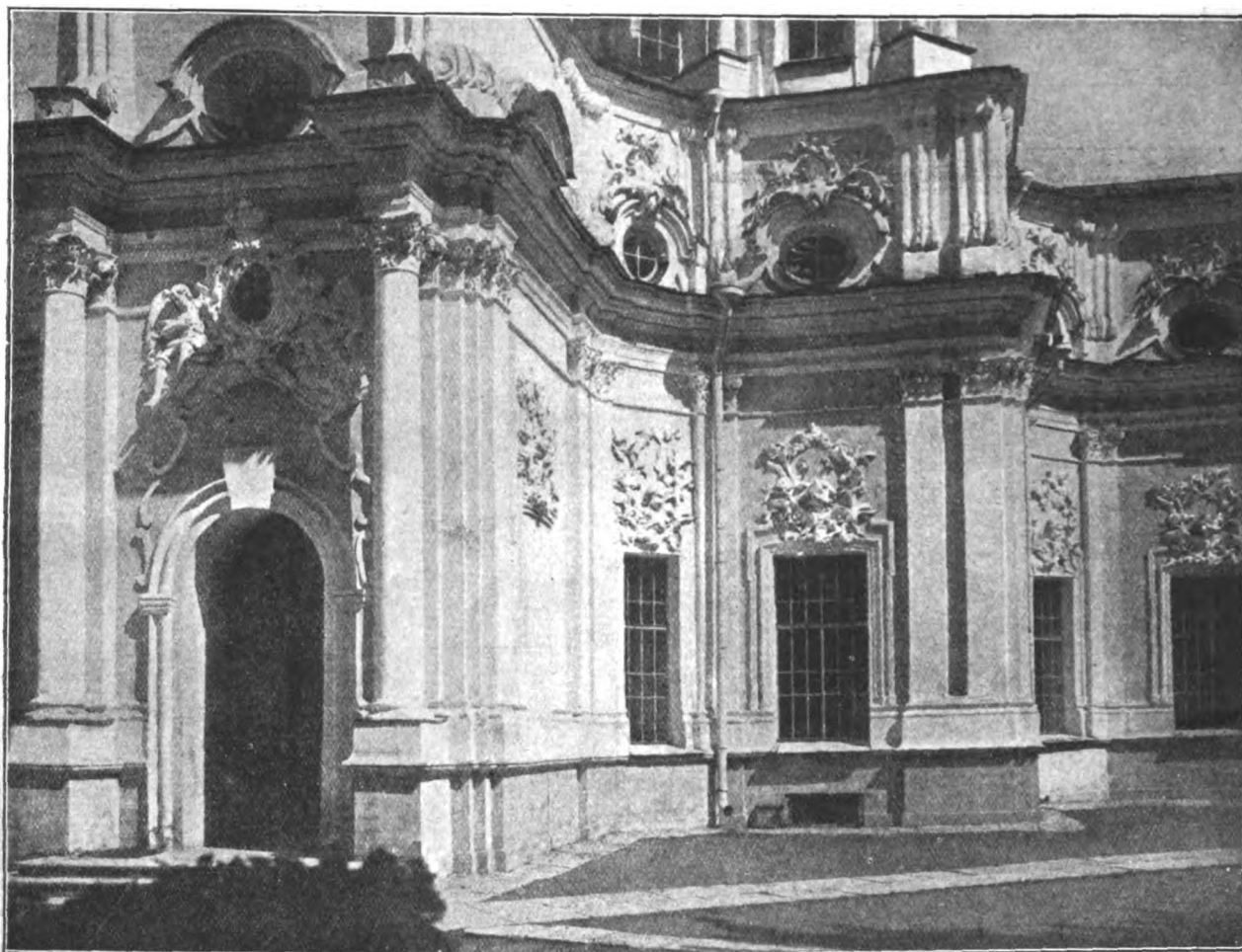
Poland, and even in Russia itself, to within six leagues of St. Petersburg, that the admiration grows with the enchantment that excites it." ("A Picture of St. Petersburg;" twenty plates. London, 1815.)

The reign of Alexander's brother, Nicolas I., started a reactionary downward movement. Nicolas was as much interested in the appearance of his capital as his brother had been, but, unfortunately, did not possess the latter's taste. He became enamoured of a dry and effete corruption of the Byzantine style, evolved by John, and with his despotic inexorability enforced his taste on all Russia. The following period (the second half of last century) was full of political and social strife; "art with a purpose" was the motto of the time, and the prevailing "national" tendencies, void of any artistic basis, brought about the so-called Ropett style, which is justly considered as the lowest degree ever reached in Russian architecture.

At the same time, particularly in private buildings, that architectural potpourri known as the style of the Second Em-

fashion than of a serious artistic endeavour. The Empire style of the reign of Alexander I. was most favoured at this time, but architects mostly treated it in an amateurish way, confining themselves only to the imitation of its outward features, such as ornaments, columns, without due regard to balance of construction. But even then filling walls of mansions with details of the Empire style, they often forgot, as is pointed out by Mr. G. Lukomsky in an interesting article in the Russian art magazine, *Apollon*, to give the building the necessary relief, treating its façade as a flat surface, with flat mouldings, entablatures, niches, ornaments, &c. Thus, says the same author, "not only the balance of all the parts of a building was not maintained and the necessary relief ignored, but the very principle of artistic architecture was sacrificed, the idea of three dimensions as the basis of architecture distinguishing it from the decorative flat surface art."

However, this period of apprenticeship was inevitable, and, after all, served to bring the builders and general public



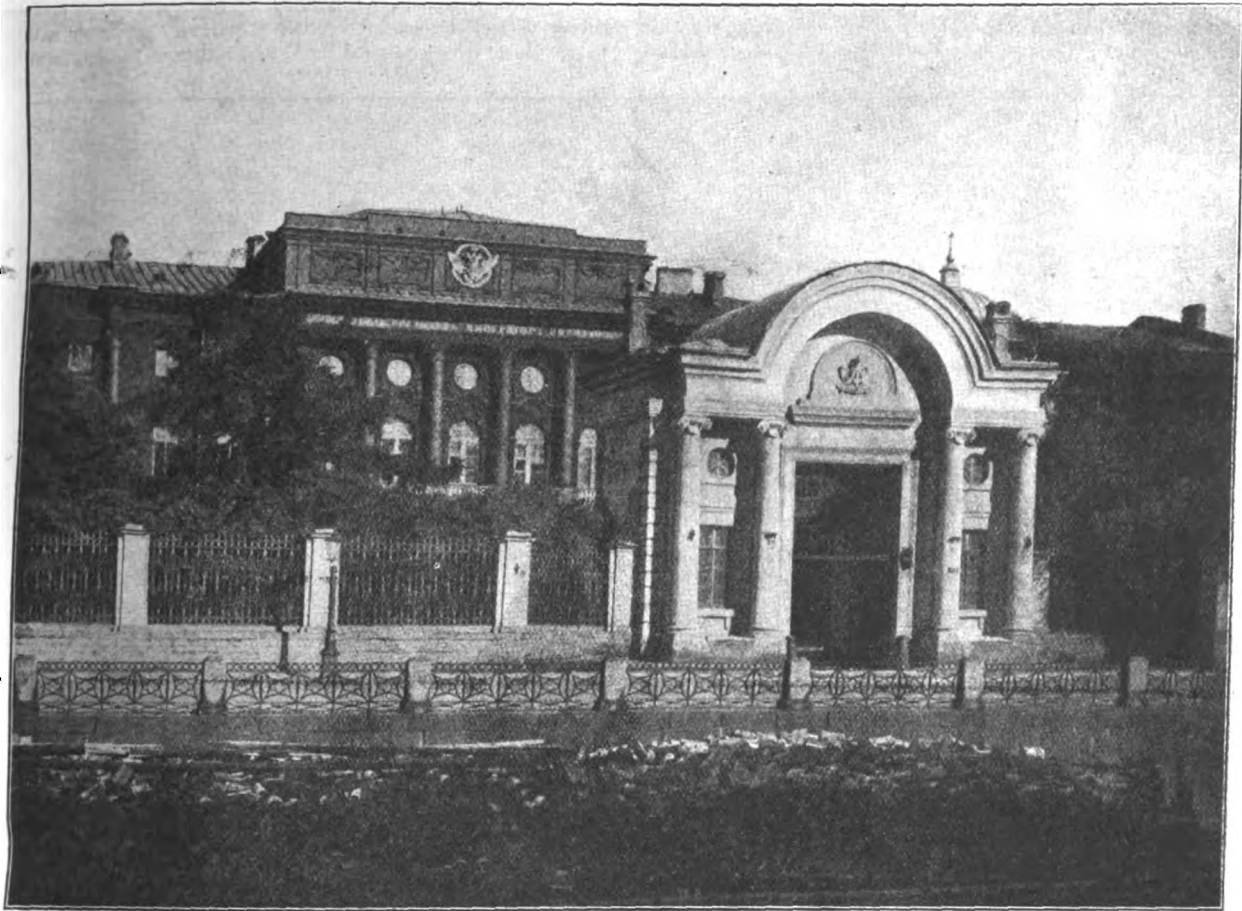
THE DETAIL OF THE SERGIEV CATHEDRAL.—Count RASTRELLI, jun., Architect.

pire, was as popular in Russia as in other countries of Western Europe.

With the general revival of art in Russia towards the end of last century, the new spirit began to manifest itself in architecture as well. At first it followed the easiest path of merely transferring to Russia the newest foreign fashion, namely, the modern style, so-called. St. Petersburg, Moscow and all the larger provincial towns, which at that time were just entering the period of extensive building, brought about by the great industrial growth of the country—all these towns began to be filled by innumerable imitations of the German product. St. Petersburg, as the most cultured artistic centre in Russia, shared in this craze for a comparatively shorter time than other towns, and was generally distinguished by a higher level of accomplishment. A reaction was, however, started after a few years of the dominance of the modern style. The awakened artistic feeling no longer satisfied with its shallow originality, turned to the study of that wealth of architectural beauty which for so many decades remained dormant, being ignored and gradually destroyed as something of no value. This interest to the old St. Petersburg, as is usual in such cases, was at first somewhat superficial, and more of the nature of a new

to a deeper study of the problems which confront artistic enterprise in a city of such glorious traditions as St. Petersburg.

To tackle those problems effectively, the first thing to do was to survey the actual position—to see what was left of the past, how great was its artistic value, and how far its traditions were to be revived and continued. The writings of a series of able artists—principally painters, such as Alexander Benois, Igor Grabar, and others, as well as the work of special publications and institutions, devoted to the study and protection of the old St. Petersburg—already brought to light the hidden beauties of the past, already rehabilitated not only the neo-Classicism of Catherine II. and Alexander I., but even the Baroque style of Elizabeth. It is wonderful how the Baroque style, quite recently so much abused and despised, denied any artistic value, was once again proclaimed to be the expression of the highest creative faculties, freed from all conventional reservations, and given the exulting joy of creating new forms. The artists who proclaimed this were not dilettanti of doubtful taste, lacking understanding of the essentials of architecture, but people of exceedingly refined artistic culture, possibly eclectic, yet highly sensitive and discerning in matters of art. In the

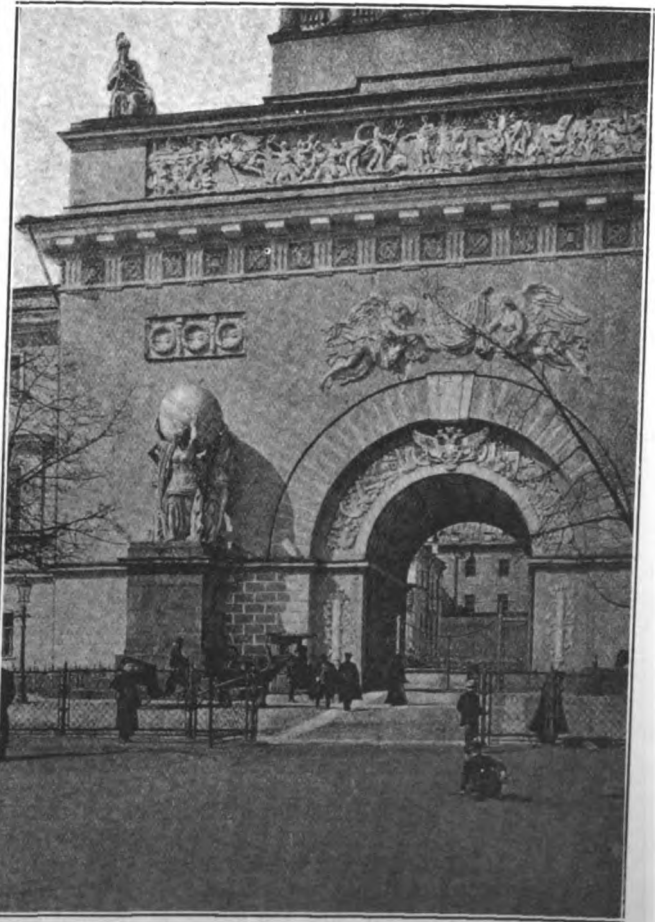


THE FACADE AND GATE OF THE HOUSE OF COUNT BOBRINSKY.—Count RASTRELLI, jun., Architect.

light of this one cannot pass without remarking that even in architecture every style, *i.e.* every complete expression of a definite artistic sentiment, however illogical and incongruous it may appear, will always find appreciation in epochs when this sentiment becomes popular again. In the case of Russia the rehabilitation of the Baroque style is, no doubt, partially accounted for by the general "retrospective" sentiments of the leading group of St. Petersburg artists, some of whom showed an exceptional congeniality with the epoch of Louis XIV.

But rehabilitated as it was, the Baroque style could not become a basis of the new movement, as comparatively only a few buildings of this style have been preserved in St. Petersburg to our time. Far more numerous are the specimens of the Renaissance and the Empire styles, and they are really the finest buildings that have ever been constructed in that city. Though often spoiled by later alterations and indiscriminate building up of the surrounding spaces, they still preserve their prominence, giving the city its peculiar noble character. Such buildings as the Admiralty, by Zakharov, a work of singularly powerful and bold design (justly considered as one of the finest buildings in the world), the Bourse, the Mikhailovsky Palace (lately subjected to a most vandalic alteration in the shape of an added wing), the Academy of Arts, the Mining Institute, and the Kazan Cathedral—such great ensembles as the quays of the Neva, the Senate Square, the square of the Winter Palace, and the Theatrical Street with the Tchernishev Bridge, to name only a few of the more characteristic examples, such ensembles and single buildings, occupying as they do the most central positions in the city, cannot fail to spread that atmosphere peculiar to themselves all over the capital. Yet in most parts the erections of the last two or three generations were so much out of agreement with the classical spirit of this architecture that the uniform general effect was often spoiled, while in some districts these new productions attained a predominance which created entirely different and often ugly effects, as in the style of separate buildings as in the combinations of architectural masses. This state of things made several architects regard the object of maintaining the uniform style of old St. Petersburg as absolutely idle and fantastic, as no such uniformity they contend at the present time exists. But such is not the view of the leading group

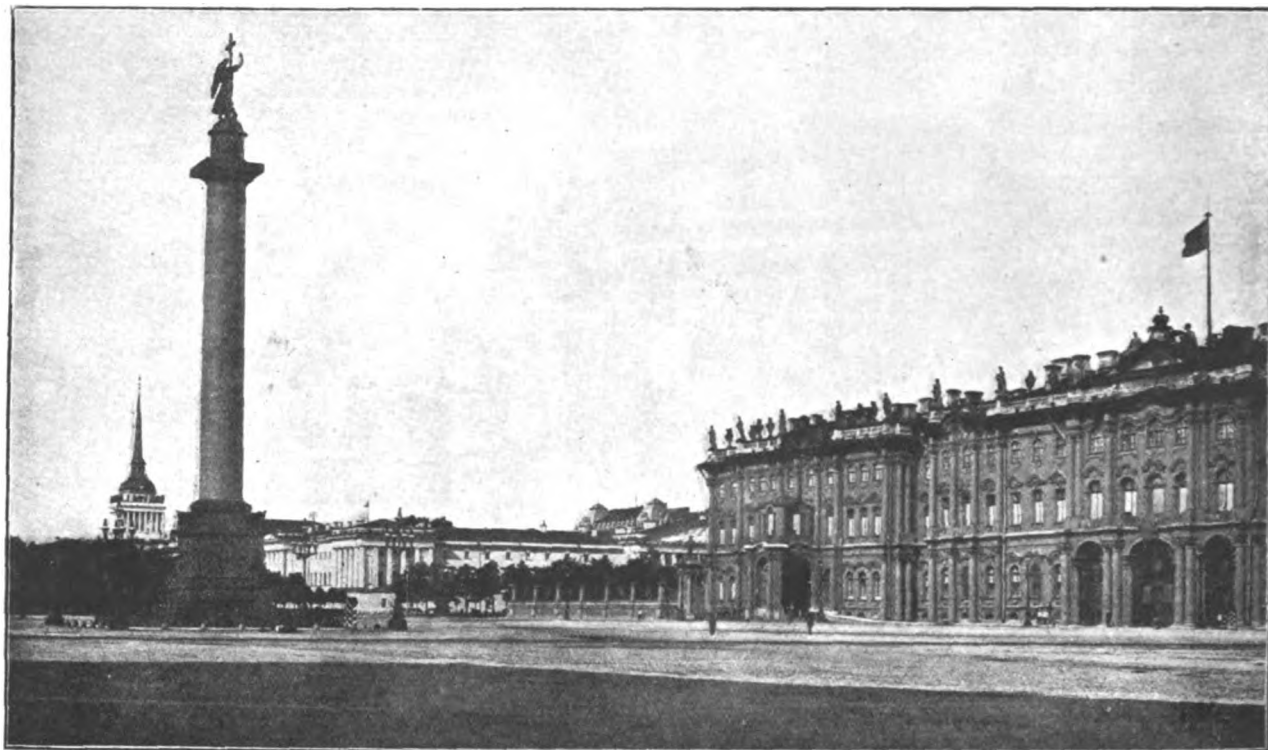
of architects that have been working in St. Petersburg during the late years. Their study of the legacy of the past con-



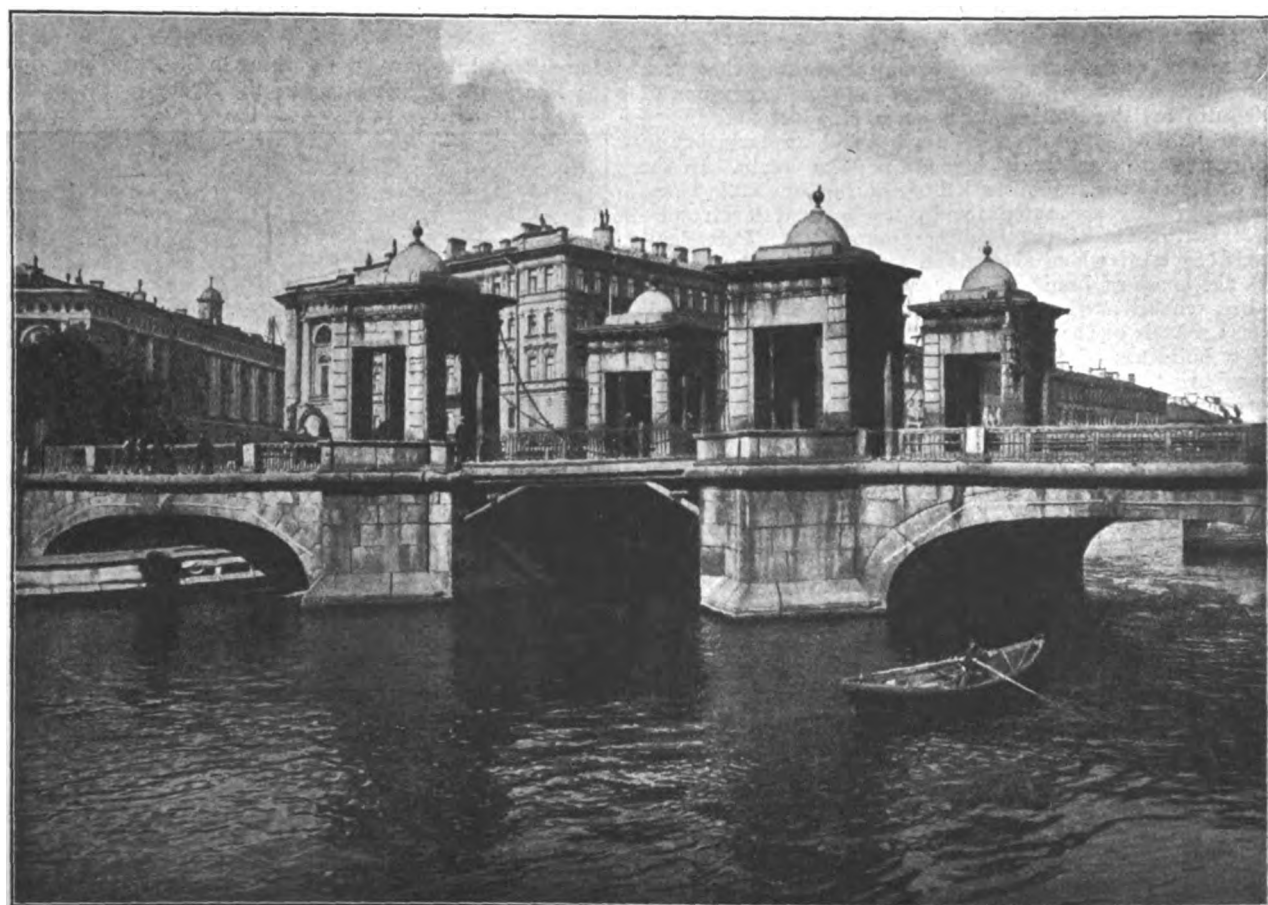
THE GATEWAY OF THE ADMIRALTY.—ZAKHAROV, Architect

vinced them not only of the beauty of the legacy, but of the predominance it still possessed, and the peculiar appropriateness of it to the whole atmosphere of the capital. It was not that attempts in other directions were considered bound

"History of Architecture." "It requires," said he, "very little knowledge of the history of architecture in modern times to feel assured that the Russians will never attain to anything great or good in Art by either of the processes by



THE PALACE SQUARE (showing the Winter Palace on the right), by Count RASTRELLI, jun. THE ADMIRALTY (on the left), by ZAKHAROV. THE ALEXANDER COLUMN, by the Chevalier de MONTFERMEY.



THE TCHERNISHEV BRIDGE OVER THE RIVER FONTANKE (1770)

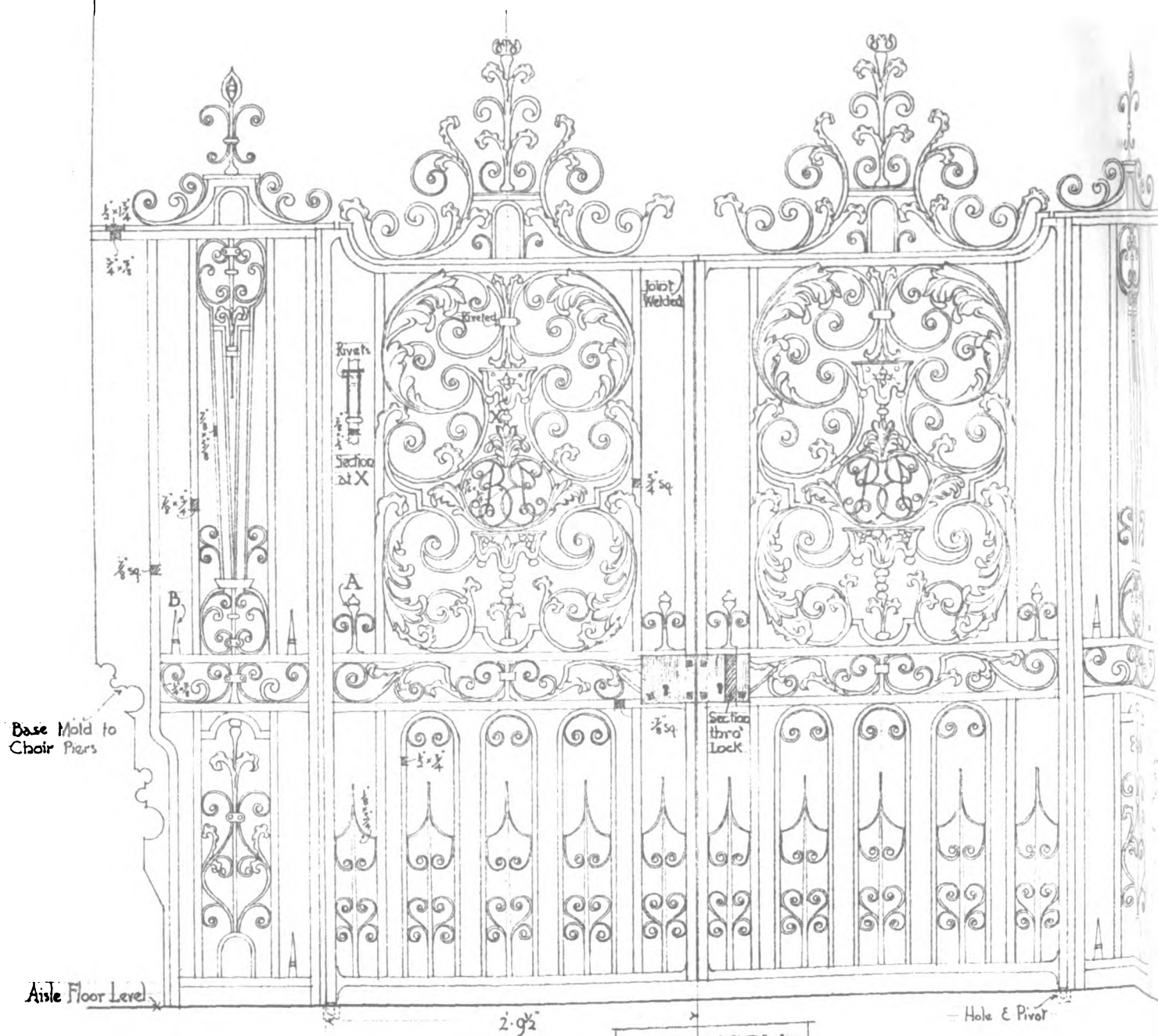
to be failures, but that the successful note already struck should be maintained and developed. In the light of this one cannot but smile, recollecting the advice to Russian architects tendered about sixty years ago by J. Fergusson in his

which they have hitherto attempted it. They never will create a style suitable to their wants by employing second-class foreign artists to repeat on the shores of the Neva designs only appropriate to those of the Seine or the Tiber.

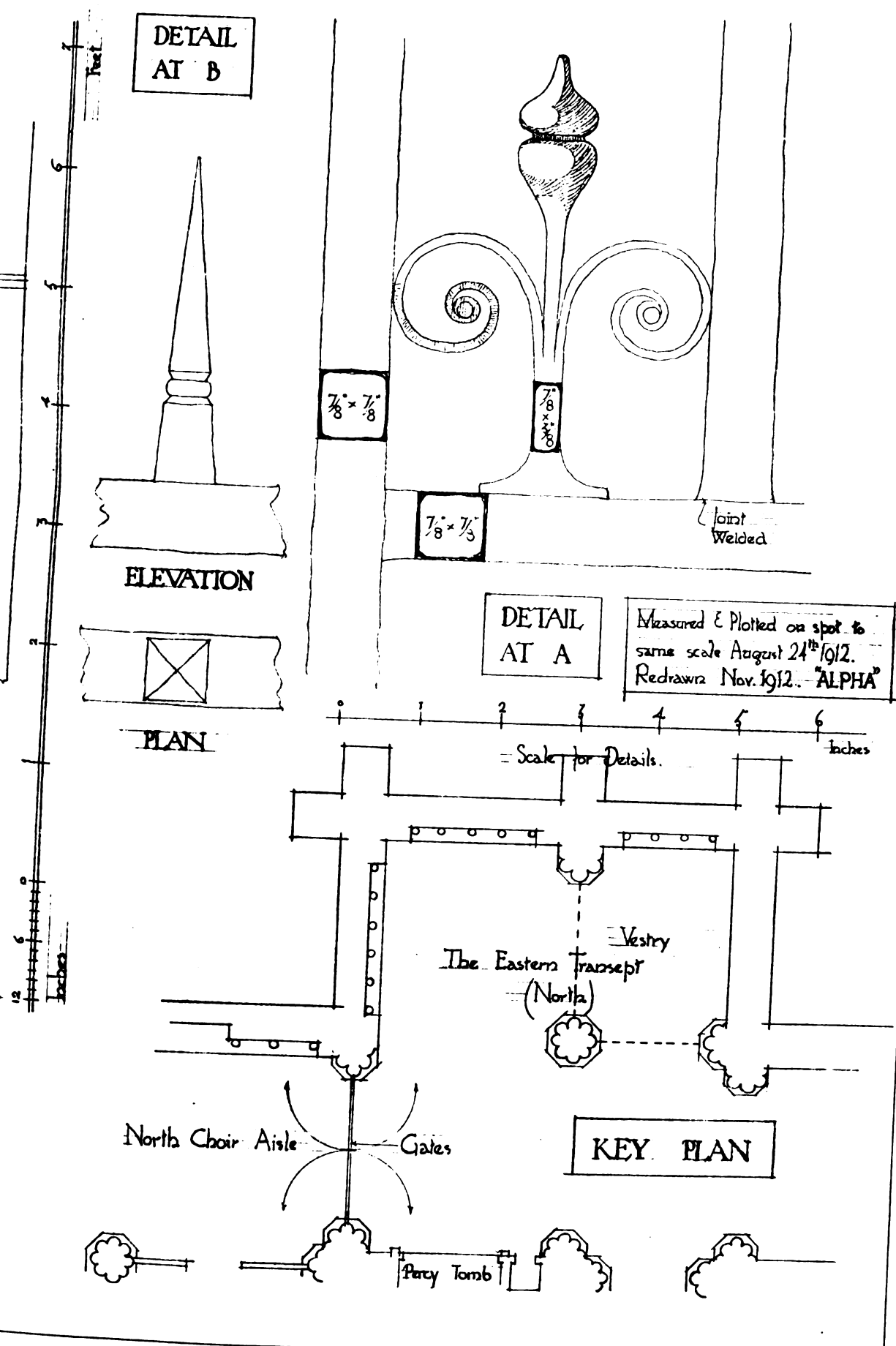
...e, "very
... modern
...er attain
...esses by

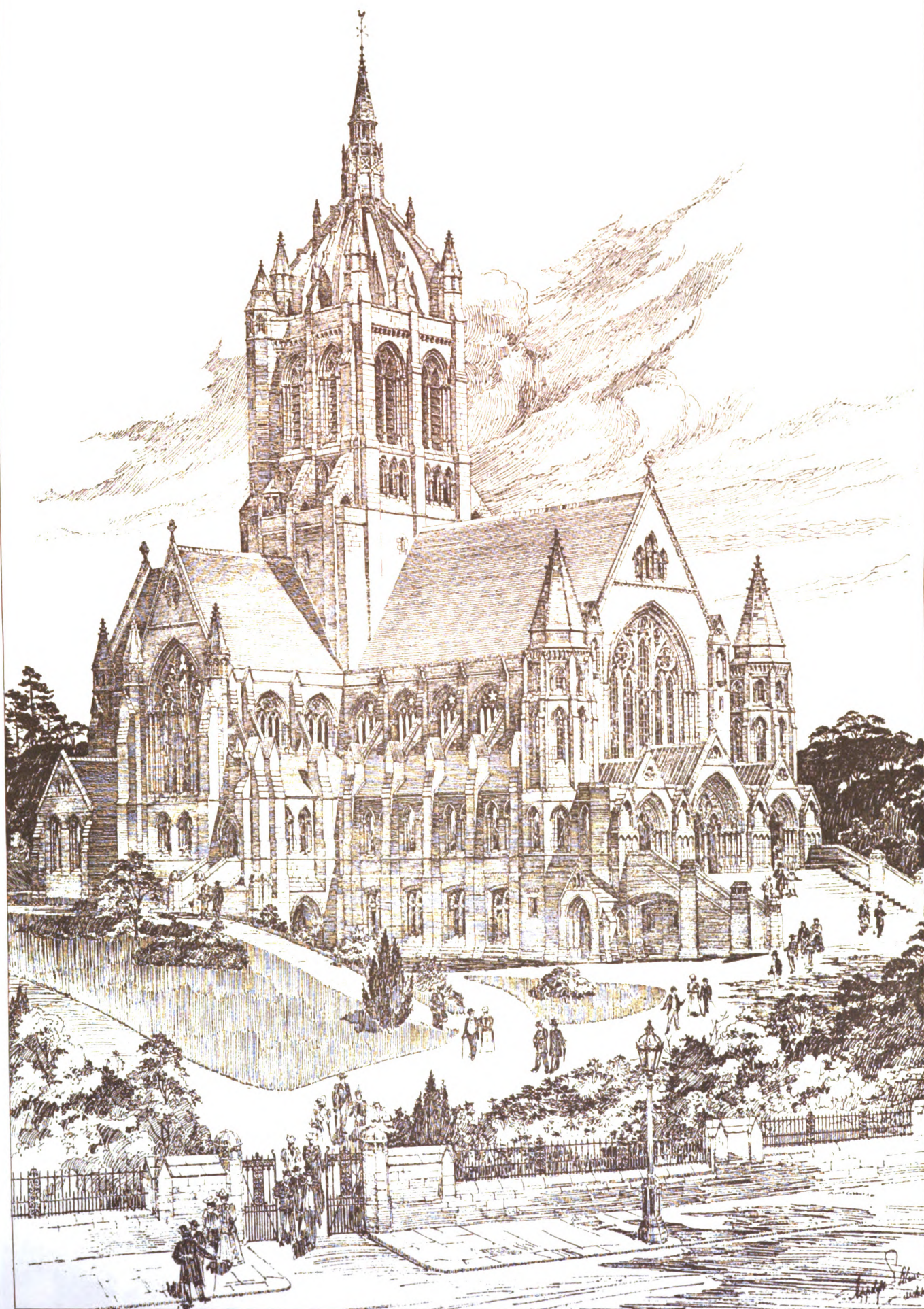
BEVERLEY MINSTER

WROTH IRON GATES • NORTH CHOIR AISLE • 18th CENT: •



NT.





"INK-PHOTO" SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

THOMAS COAT'S MEMORIAL CHURCH, PAISLEY.

MR. HIPPOLYTE J. BLANC, R.S.A., F.S.A.Scot.



INK-PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

H. G. Webb

AN OLD STREET IN DOVER.

From an Etching by Mr. H. G. WEBB.



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

RUE EAU DE ROBEC, ROUEN.

From an Etching by Mr. FRANK L. EMANUEL.



PHOTO-LITHO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, LONDON, W.

ST. MATTHEW'S CHURCH, EDINBURGH.

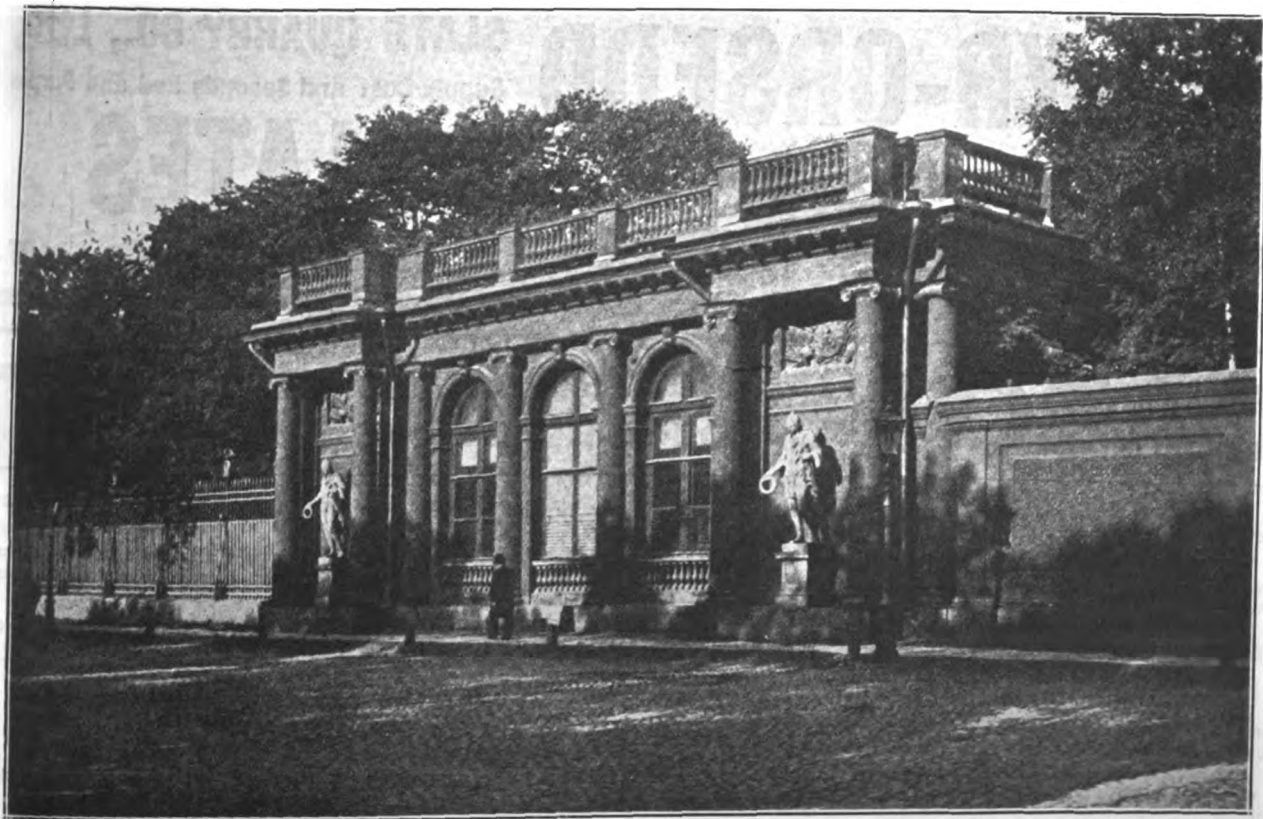
Mr. HIPPOLYTE J. BLANC, R.S.A., F.S.A.Scot.

Still less are they likely to succeed by encouraging native aspirants to reproduce in all its details the style of the Middle Ages, though no doubt that has a certain degree of fitness, and is interesting from its archæological value. There is

of Sta Sophia." It is curious to know that just at the time when this advice was given the movement started by John and based on an imitation of the Byzantine style was acquiring an ever-growing influence, until it became pre-



THE ACADEMY OF ARTS.—KOKORINOV and De la MOTTE, Architects.



A PAVILION ADJOINING THE ANITCHKOV PALACE.—RONNI, Architect.

still, however, one path that seems open to the Russian architects and which, if followed steadily, might lead to the most satisfactory results." And Fergusson proceeds to recommend the Byzantine style—"a third or fourth edition

dominant all over Russia. Alas! the results proved much less satisfactory than promised by Fergusson, and the present generation regards this period as one of the darkest in the whole history of Russian architecture. On the other hand,

MORE **INVINCIBLE TALBOT** WINS

A trio of Talbot cars competing in the Caerphilly Hill Climb and Porthcawl Speed Trials on June 19 and 21 won between them

7 GOLD MEDALS, 5 CHALLENGE CUPS, AND 2 SPECIAL AWARDS.

All three cars were undefeated in the seven events they contested.

Such an amazing sequence of successes is further proof of the superior speed and power of TALBOT cars—the first essentials of an EFFICIENT touring car.

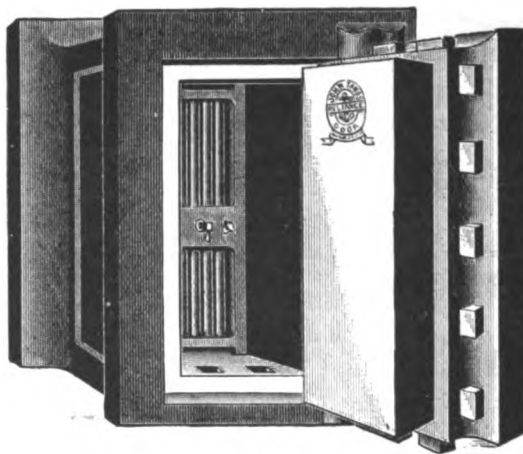
Catalogue on request.

CLEMENT TALBOT, Ltd.,

Automobile Designers and Engineers,
Barlby Road, Ladbroke Grove, London, W.

ESTABLISHED 1795
FOR SECURITY AND VALUE
ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS
THE GREATEST SECURITY
FOR ANY GIVEN EXPENDITURE, BACKED UP BY
THE HIGHEST RECORD—
118 Years without a single failure against
either FIRE or BURGLARS.

Catalogues and Estimates from **JOHN TANN, Ltd.**
117 NEWGATE ST., LONDON.

PEN-YR-ORSEDD

SLATE QUARRY CO., Ltd.,
Supply Best and Seconds Red and Purple

SLATES

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

TO MERCHANTS AND THE TRADE.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other dealener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0	Asbestos-covered £1 12 8

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

the very classicism which was supposed to be so inappropriate on the shores of the Neva is now revived and further developed, and its appropriateness most emphatically proclaimed by hosts of gifted enthusiasts.

Now that we have shown how this revival has been brought about, before we come to a detailed description of what has actually been done in this direction we must consider one more point of general character. This is the social and technical conditions under which architectural work is carried on in St. Petersburg. The importance of favourable social conditions for the development of architecture goes without saying now. Great achievements presuppose great endeavours and plans, and in an art so distinctly social as architecture great plans can be striven for and carried out only by free and enterprising communities or by enlightened, despotic Governments. Neither of these two political forms is at present existing in Russia. The Russian Government, despotic though it still remains, lost its enlightenment in matters of art generations ago, and by its interference has obstructed architectural development more than helped it. Besides, of late it has been too busy in fighting its political battles and securing its position to take more than a passing interest in great architectural plans. On the other hand, the municipal organs in Russia possess very little power, and, being mostly composed of representatives of the middle classes, which in our time exhibit neither artistic nor intense social sentiments, they seldom venture to embark on any grand constructive scheme, and when they do the results of their enterprise are generally on a level with their artistic culture. The municipality of St. Petersburg is hardly an exception to this rule, and as a consequence, if we take into consideration the position of the Government as well, architectural enterprise in this city on anything like extensive and independent lines finds in these quarters very little encouragement. But not only in the surrounding atmosphere does the present-day Russian architect find a lack of lofty ideals and enthusiasm; in his own profession, among the craftsmen on whose skill so much of the success of construction depends, he is confronted with a total lack of good workmanship and artistic intelligence. There was a time—the Middle Ages—when Russian masons, joiners, and other artisans were able to create chefs-d'œuvre of workmanship, such as shown in, for instance, the ornamentation of some Moscow churches. But these times have been left behind too long. During the modern era complaints of the low degree of skill in the working of details have never ceased, and the present-day architects are as much hampered in the successful carrying out of their designs as their predecessors were. Nothing, of course, could be more discouraging to a gifted and ambitious artist.

(To be continued.)

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Amersham.—Two cottages, for Mr. W. Gomm; also House, Grimsdells Lane.
House, Chesham Road. Mr. H. Kennard, architect.
House, shop and dairy, for Messrs. Swannell & Sly.
Bledlow.—Parochial School: enlargement.
Chalfont Road.—Four cottages, for Mr. E. H. Watson.
Chesham Bois.—House, Copperkins Lane, for Mr. A. W. Nash.

Great Missenden.—Fire Engine house.

Kingshill.—House for Mr. House.

Princes Risborough.—Council School.

CHESHIRE.

Congleton.—St. Peter's C. of E. Schools: alterations.
Marlesfield.—Workhouse: Hospital extension and Nurses' Home (£600).

CORNWALL.

Penzance.—Forty-two Workmen's dwellings, Weeths Fields (£9,300).

CUMBERLAND.

Great Corby.—Two houses for Mr. W. Murray (of Workington).

Haile.—House. Mr. N. Kitchen, architect, Woodend House, Bigrigg.

DERBYSHIRE.

Derby.—St. Andrew's Church: restoration (£1,400).

DEVON.

Exeter.—Newtown and St. Thomas boys' schools: manual instruction rooms (£650).

Hartland.—U.M. Church.

DURHAM.

Brandon.—Central Picture and Variety Hall: alterations for Brandon and Byshttles Co-operative Society, Ltd.

Jarrow.—Police barracks and offices.

ESSEX.

Benfleet, South.—Elementary Council School: enlargement.

Chelmsford.—Town Hall and Municipal buildings.

One hundred and six working-class dwellings, Rainsford Lane (£30,000).

Dunmow, Great.—C. of E. School: improvements.

Downs School: additions and alterations.

Earls Colne.—Council School. Mr. F. Whitmore, County Education architect, 73 Duke Street, Chelmsford.

Grays.—Baptist Sunday School, Hathaway Road (for 600 places). Mr. C. M. Shiner, A.R.I.B.A., architect, The Gate House, Grays, and 7 Adam Street, Adelphi, London, W.C. (£1,600).

Hadleigh.—Council School: additions.

Hanningfield, East.—Cookery Centre.

Hornchurch.—Council School, Malvern Road.

GLOUCESTERSHIRE.

Bristol.—Parish Hall and schools, Fishponds (£3,700).

Mr. M. Froud, architect, 1 St. Stephen's Chambers, Baldwin Street.

LANCASHIRE.

Bispham.—Business premises. Mr. J. R. Whittaker, architect, 33 Birley Street, Blackpool.

Bolton.—Two houses, Bennetts Lane. Messrs. T. E. Smith & Son, architects, Central Chambers, Fold Street; also

Picturedrome, Shepherd Cross Street.

Manchester.—Exchange Station: enlargement for L. and Y.R. Co.

Public Elementary School (for 300 places), Ripestone Road, Moston.

LEICESTERSHIRE.

Leicester.—Public Elementary School, Harlaxton and Woolsthorpe Streets.

LINCOLNSHIRE.

Donington.—Church Institute. Mr. W. Bond, architect, 11 Elmer Street. Messrs. J. Leafe & Sons, contractors, 43 Sleaford Road, Boston.

MIDDLESEX.

Finchley, North.—Two hundred working-men's houses, Woodhouse Estate, for the U.D.C.

Hendon.—St. John's Parish Hall.

Twickenham, Upper.—(Supplementary to May 30.)—Church, Staines Road. Mr. J. S. Alder (Messrs. Alder & Turrill), architect, 1 Arundel Street, Strand, London, W.C. Messrs. J. Dorey & Co., Ltd., contractors, Distillery Road, Brentford.

MONMOUTHSHIRE.

Blackwood.—One hundred houses, Oakdale Village Estate. Mr. A. F. Webb, architect, High Street.

NORFOLK.

Hilgay.—County School. Mr. J. E. Burton, architect, 11 Bank Plain; also

Trunch.—Parish Hall.

NORTHAMPTONSHIRE.

Irchester.—Boot and Shoe Technical Instruction Factory, for the C.C. Education Committee.

New Duston.—Nonconformist Chapel (£500). Accommodation for 100.

NORTHUMBERLAND.

Whitley.—Working-class houses (£9,700).

NOTTINGHAMSHIRE.

Mansfield.—Fire station and residences (£6,000).

Ragged School and Gospel Mission Hall, Pelham Street (for 350 sittings).

Nottingham.—Factory, Sherwood. Messrs. Bromley, F., & Watkins, A.R.I.B.A., architects, Prudential Buildings.

STAFFORDSHIRE.

Audley.—P.M. Schools (£500).

SURREY.

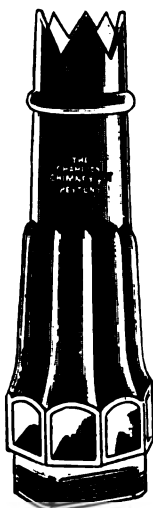
Chiddingfold.—Village Hall.

Esher.—Banking Premises, Portsmouth Road, for Messrs. Barclay & Co., Ltd. Mr. W. Ralphlow, architect.

Guildford.—Twenty workmen's cottages.

PECKETTS'Workmanship and Materials of the
Highest Quality.Built to any Specification
or Gauge.**LOCOMOTIVES****PECKETT & SONS, Atlas Locomotive Works, BRISTOL.****A. E. WALSHAM,***Architectural Photographer,***60 Doughty Street, London, W.C.**

Telephone: 3600 Central.

Official Photographer
— to
H.M. Office of Works.Photographs taken in
any part of the country
— at shortest notice. —The principal feature of
the CHAMPION CHIMNEY POT is
its magnificent updraft.For many years the
"Champion" has been speci-
fied by LEADING ARCHITECTS,
and has sold in large numbers.Architects speak highly of
its SMOKE-CURING and VENTI-
LATION qualities, and admit
it to be of excellent design.Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.,
Ltd., 105 Albion St., LEEDS.**THE
'HEAPED'
FIRE**

(Bratt's Patent)

is scientifically constructed
to generate great heat
with economical fuel con-
sumption.

Sole Makers—

BRATT, COLBRAN & CO.

and the HEAPED FIRE COMPANY, LTD.,

10 MORTIMER STREET, LONDON, W.

BE SURE YOU PURCHASE**Genuine "Willesden" Green
Canvas****BEWARE OF FOREIGN AND ORIENTAL IMITATIONS.****W.M. DUNCAN TUCKER & SONS, LD.**TELEPHONE
TOTTENHAM.**TOTTENHAM. N.**TELEGRAMS
"HORTICOLE
LONDON"**JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN**

ENGLAND—continued.

SUSSEX.

Firle.—Memorial Hall. Messrs. Powell & Co., architects, 89 Chancery Lane, London, W.C.

WARWICKSHIRE.

Birmingham.—P.M. Church, Rookery Road, Handsworth, for 550 sittings (£4,500).

Public Elementary School, Selly Oak Road.

Picture Theatre, Stratford and Solihull Roads, Spark-hill, for Mr. H. Dewey.

Sutton Coldfield.—Baptist Church, Victoria Road and Lower Parade (£1,600).

WESTMORLAND.

Kendal.—Seed warehouse, Old Shambles. Mr. J. Hutton, architect, 22a Highgate.

WORCESTERSHIRE.

Redditch.—Empire Cinematograph Theatre, for Empire Theatre, Dudley.

Worcester.—Y.W.C.A. new buildings (£4,500).

YORKSHIRE.

Bilton-with-Bickerton.—Church School.

Ecclesall.—Public Elementary School (for about 850 places).

Fursley.—Picture Palace, Old Road and Town Street. Messrs. Chadwick & Watson, architects, 9 Albion Street, Leeds.

Goole.—Municipal Offices (£8,000). Mr. E. E. Fetch, A.R.I.B.A., architect, 20 John Street, Adelphi, London, W.C.

Halifax.—Farm buildings and houses, Binn Royd and Hollas, Norland: demolition and rebuilding. Messrs. Jackson & Fox, architects, 7 Rawson Street.

Heckmondwike.—Picture Palace, High Street. Mr. H. Stead, architect, Kaye Street.

Leeds.—Trades Hall, Upper Fountaine Street: extensions. Mr. W. S. Braithwaite, architect, 6 South Parade.

Middlesbrough.—Villas, Poplar Grove, South Bank. Messrs. Walshaw & Rhodes, architects, Normanby Road, South Bank.

Stanley.—P.M. Sunday Schools, Bottomboat. Mr. W. G. Smithson, architect.

Selby.—Conservative Club: alterations (£1,000).

WALES.

Aberystwyth.—National Library of Wales. Messrs. Willcock & Co., contractors, Darlington Street.

Ammanford.—Church. Mr. W. Evans, contractor, College Street.

Llanidloes.—Twenty Garden-city houses.

Machynlleth.—Nineteen Garden-city houses.

Nelson.—Cinema. Mr. G. Kenshole, architect, Station Road, Bargoed.

Port Talbot.—Mixed school (for 250 places), Aberavon. Mr. J. A. James, architect, Plough Terrace.

Swansea.—Council School, Brynmill.

Ferwig.—Council School: improvements. Mr. G. D. Lewis, County architect, 49 North Parade, Aberystwyth.

SCOTLAND.

Aberdeen.—St. John's Church: Tower. Mr. A. Clyne, F.R.I.B.A., architect, 375 Union Street.

Grammar School: additions and alterations. Mr. J. A. O. Allan, architect, 25 Union Terrace.

Blaigowrie.—Garage, Perth Street, for Messrs. J. Harper & Sons.

Edinburgh.—Picture House, Raeburn Place, for the Caledonian Electric Theatres, Ltd.

94 Canongate: reconstruction, for the School Board.

Slaughter-house, Gorgie: additional buildings for the Corporation.

Glasgow.—Dispensary, Granville Street, for the Corporation.

Helensburgh.—Picture House, James Street. Mr. N. C. Duff, F.R.I.B.A., architect, 115 Wellington Street, Glasgow.

Invergordon.—Naval Club for the officers of the 2nd destroyer flotilla.

Stonehaven.—Tuberculosis Hospital (for six or eight beds) next the Isolation Hospital.

West Dykebar.—Farm: additions and alterations; also ploughman's cottage, for Renfrew District Lunacy Board. Mr. T. G. Abercrombie, architect, 1 County Place, Paisley.

IRELAND.

Ballyward.—Orange Hall. Mr. D. M. Gracey, architect, Newcastle.

Kingstown.—Workmen's Club-house (£1,200).

PATENT SPECIFICATIONS PUBLISHED
JUNE 26, 1913.

Selected by James D. Root, M.I. Mech.E., Thanet House, Temple Bar, London.

No. 10,303. May 1, 1912.—Thomas Morris, 77 St. German Street, Farnworth, near Bolton. Method of bending corrugated sheet metal.

12,732. May 30, 1912.—Henry Anderson, 85 Corporation Street, Manchester. Apparatus for automatically lighting and extinguishing gas burners operated by clock-work mechanism.

12,879. June 1, 1912.—T. J. Gibbs, 37 Royal York Crescent, Clifton, Bristol. Obtaining and keeping water pure.

13,103. June 4, 1912.—E. R. Budd and T. S. Waddell, of Clifton & Waddell, Johnstone, Renfrew. Sawing machine.

13,281. June 5, 1912.—Frederick Shirliff, High Street, Hampton Hill. Machines for making concrete blocks.

13,873. June 13, 1912.—W. H. Sharpe, St. Ann's Works, Southend-on-Sea. Ventilators.

13,930. June 15, 1912.—H. E. Kitton, 45 Doughty Street, W.C. Circular saw holder.

13,950. June 15, 1912.—L. E. Walker, 15 Little Debdale Lane, Mansfield, Notts. Detachable hinge interlocking joint as applied to any form of clip for the securing and support of cables, pipes, and the like.

14,077. June 17, 1912.—R. G. Crosbie, 373 Burwood Road, Hawthorn, Victoria, Australia. Locks or latches for gates, doors, or the like.

14,436. June 20, 1912.—Charles & F. W. Wilson, 8 Oxford Road, Luton. Ball cocks for cisterns.

14,819. June 25, 1912.—Trevor Hudson, 28 Shaftmoor Road, Acoks Green, Birmingham. Detachable fronts for domestic firegrates.

14,941. June 26, 1912.—Evangelo Halikiopulo, 88 Fenchurch Street. Window sash fasteners.

15,017. June 27, 1912.—A. E. Bishop, 4 Blackheath Hill, Blackheath, S.E. Compositions for fixing and securing tiles to walls, ceilings, and other surfaces.

15,392. July 2, 1912.—Walter Brown, Hewell Road, Barnt Green, near Birmingham. Secondary water tap for facilitating the repairing of water taps and stop cocks.

15,923. July 8, 1912.—Maurice Zutter, 33 rue Traversiere, Paris. Doors, &c., hinges.

17,015. July 22, 1912.—F. O. Bynoe, 51 Myrtle Road, Acton, W., and Henry Edwards, 56 Marlborough Hill, Harrow. Decoration, colouring and branding of wood or other charable material.

17,562. July 29, 1912.—V. J. Whitney, 541 Thirtieth Avenue, Seattle, Washington, U.S.A. Windows.

17,877. Aug. 2, 1912.—Walter Griffiths and The Wizard Dust Extractor Co., Ltd., Vulcan Works, Frankfort Street, Birmingham. Vacuum cleaning apparatus.

17,966. Aug. 3, 1912.—J. S. Ewart, 38 Rylands Road, Beeston, Notts, and W. R. Smart, 7 George Road, West Bridgford, Notts. Floors for buildings.

19,817. Aug. 30, 1912.—G. A. Ure, Wheatlands, Bonnybridge, Stirling. Means for adapting anthracite and other self-contained stoves to ordinary fireplace openings.

21,178. Sept. 17, 1912.—E. G. Harcourt and W. E. Harvey, of Harcourts, Ltd., Moseley Street, Birmingham. Handle and similar nobs for doors.

23,142. Oct. 10, 1912.—Robert Brown, Ferguslie Works, Paisley. Lavatory basins.

26,913. Nov. 22, 1912.—Sigmund Szonyi, 23 Lipotkorut, Budapest V, Hungary. Fire-resistant grate bars.

27,585. Nov. 30, 1912.—H. D. Morgan, 743 Royal Liver Building, Pier Head, Liverpool. Ventilators.

2,078. Jan. 25, 1913.—Dated under International Convention Jan. 25, 1912. H. R. de Lempdes, Mende (Loziere), France. Closed slow-combustion stoves.

2,939. Feb. 4, 1913.—S. A. & H. R. Armitage, Walton Lea, Warrington, Lancs. Open fireplaces.

3,813. Feb. 14, 1913.—E. L. Johnson, 40 Cranworth Street, Hillhead, Glasgow, and N. F. Ramsay, Charlotte Square, Newcastle-on-Tyne. Sash pulley.

3,892. Feb. 15, 1913.—Dated under International Convention Feb. 17, 1912. Dr. Ernst Enss, 16 Neue Kantstr., Charlottenburg, Germany. Means for extinguishing fires.

DURES CO

THE KING OF WATER PAINTS.

The FIRST in the Field. The FOREMOST ever since

THE SILICATE PAINT CO.

Made and sold a Water Paint in 1875.

30 Years Experience has stamped

DURES CO

as being the premier Water Paint.

SOLE MANUFACTURERS—

THE SILICATE PAINT CO.,

J. B. ORR & CO., Ltd.,

CHARLTON, LONDON, S.E.

NOW READY. Price 2/6 net; by post, 2/10.

Merton College

OXFORD

With Historical and Descriptive Essay.

By **BERNARD W. HENDERSON, M.A.**

Containing 14 Illustrations on Art Paper, neatly bound.

MERTON WILL BE THE FIRST OF THE SERIES OF OXFORD COLLEGES.

The following is the List of Illustrations:

- | | | |
|-----------------------------------|---------------------------|-----------------------|
| 1. The Mob Quad | 6. Entrance to Front Quad | 11. The Chapel |
| 2. Gateway in Inner Quad | 7. The Inner Quad | 12. Warden's House |
| 3. Tower from the Grounds | 8. The New Additions | 13. The New Additions |
| 4. The Old Gateway | 9. The Hall | 14. The New Additions |
| 5. Merton College from the Fields | 10. The Library | |

Size of Illustrations, 9½ in. by 6½ in.

The book is produced in the best style possible from photographs specially taken, printed on art paper, size 13 in. by 9 in., price 2/6 net; by post, 2/10. As the first issue is expected to be in demand, early application should be made.

Published by P. A. GILBERT WOOD, 6-11 Imperial Buildings, Ludgate Circus, London, E.C.

3,894. Sept. 28, 1912.—S. R. Parkes, Pretoria Works, Willenhall, and C. H. Freeman, 30 Stephenson Street, Wolverhampton. Wooden glazing bars for roof lights and for other purposes.

5,036. Feb. 27, 1913.—H. M. Fisher, "Fairlands," Hambro Hill, Rayleigh, Essex. Building blocks.

7,278. March 27, 1913.—S. R. Parkes, Pretoria Works, Willenhall. Fastening devices for doors and windows.

2,126. Jan. 27, 1913.—Lackawanna Steel Company, 2 Rector Street, New York. Rolling interlocking sections for metal sheet piling.

3,329. Feb. 8, 1913.—Chemische Fabrik Griesheim Elektron, 31 Gutleutstr, Frankfurt-on-Main. Yellow diazo-dyestuffs and pigment colours.

4,657. Feb. 24, 1913.—H. N. Barnes, and E. Pollard & Co., Ltd., 29 Clerkenwell Road. Sliding doors, sashes, and the like.

6,366. March 14, 1913.—Reinhold Girndt, Grohn-Vegesack, Germany. Slab moulding machines.

8,360. April 9, 1913.—Dated under International Convention April 9, 1912. Henry Schnieder, Alden, Freeborn, Minn., U.S.A. Stone gathering and transporting implement.

Any of the above specifications may be obtained from J. D. Roots & Co.

COMMONS AND FOOTPATHS PRESERVATION SOCIETY.

LORD EVERSLEY presided over the monthly meeting of the Commons and Footpaths Preservation Society at 25 Victoria Street, Westminster, and stated that he had received from the Prime Minister an assurance of Government support for the Society's Rights-of-Way Bill when that measure reached the House of Commons.

The Bill would greatly simplify the proof of footpaths and other highways, since it would remove the necessity of relying upon the evidence of aged and infirm witnesses by providing that uninterrupted public user for forty years should be sufficient to raise the presumption of dedication in the case of paths crossing entailed estates. It was decided to organise a Conference of the Open Spaces Societies to consider what further joint action should be taken in regard to the enclosures in Regent's Park, and much satisfaction was expressed at the rejection of the Northern Junction Railway Bill, under which various open spaces and commons in the North of London were threatened, as well as of the proposals of the Battersea Borough Council with reference to Latchmere Recreation Ground. The Society had joined in the opposition to both of these schemes. It was stated by Mr. P. Birkett (Hon. Solicitor) that an instruction was being agreed with the promoters in regard to the proposal of the North-Eastern Railway Company to acquire under their Bill interests in the Town Moor, Sunderland, a valuable open space situate in a crowded part of the borough. Lord Eversley stated that in response to his appeal for funds on behalf of the Society he had received from Sir John Brunner a donation of £500. It was reported by the Secretary, Mr. Lawrence W. Chubb, that at the request of landowners and local authorities the Society was acting as arbitrator in regard to over 100 disputed rights-of-way in Kent, Middlesex, Herts, Hereford, Yorkshire, and Anglesey.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Northern Junction Railway—and After.

SIR.—The defeat of the Northern Junction Railway is a triumph of public welfare and rights over the interests, or alleged interests, of certain railway companies and promoters. Not only has the Hampstead Garden Suburb been saved; an important principle has been established in that railway promoters cannot expect to make a series of arbitrary embankments, cuttings, and ugly viaducts through the heart of residential areas without first consulting local authorities which seek to provide for the immediate and rational development of their districts under the Housing and Town Planning Act, 1909.

The fight has been a long and sustained struggle, and

this Association in all modesty may take some credit for the result. During the past four months it has organised public meetings of protest in many parts of North and West London. The co-operation of the London and Provincial Press has been obtained with conspicuous success, and local authorities, supported by public expressions of indignation in their own districts, induced to fight the proposal *en bloc*. We have, in fact, borne the brunt of the campaign which produced such a formidable and effective opposition in committee.

The Garden Cities and Town Planning Association has just issued an appeal for £1,000 in order to meet the expenses involved not only in this respect, but more especially to urge (amongst other pressing objects):—

Immediate public action for the housing of dock labourers and others who will have to reside in East London in connection with the Port of London Authority's big scheme of dock extension now being carried out.

Immediate public action for the housing of 5,000 English employees and their families, who will shortly be transferred to Rosyth Naval Base.

Our national campaign in favour of garden cities and town planning.

The Association was founded by Mr. Ebenezer Howard in 1899, and during the past fourteen years it has urged successfully the adoption of the principles of garden cities and town planning with an income derived solely from public subscription. We are now faced with widespread demands for lectures, advice and assistance in many ways, as well as a serious deficit in our financial resources. It is just now that public recognition of the value of our work is urgently required in connection with both the Northern Junction Railway and in making possible an era of more efficient men and better cities. We have already incurred greater liabilities than there is revenue to meet.—Yours, &c.,

EWART G. CULPIN, Secretary.

The Garden Cities and Town Planning Association,
3 Gray's Inn Place, W.C.: June 27, 1913.

Sheet Piling and its Uses.

SIR.—With reference to the article appearing in *The Architect and Contract Reporter* of June 6, entitled "Sheet Piling and its Uses," pages 565 and 566, I have to inform you that a slight error has crept into the statement about cast-iron interlocking piles mentioned on page 566. These were used at the Asyut Barrage, and not at the Aswan Dam.

The other information given is quite correct.

I have the honour to be, sir, your obedient servant,

M. MACDONALD,

Under Secretary of State
(Director-General of Reservoirs).

Public Works Ministry, Cairo:

June 21, 1913.

THE Royal Society of Arts have awarded silver medals to the readers of certain papers during the session 1912-13, including the following: Mr. Joseph Pennell, "The Pictorial Possibilities of Work"; Mr. H. V. Lanchester, F.R.I.B.A., "The Design and Architectural Treatment of the Shop"; and Sir Bradford Leslie, K.C.I.E., M.Inst.C.E., "Delhi, the Metropolis of India." Abstracts of each of these papers have appeared in our columns.

THE L.C.C. Local Government, Records, and Museums Committee report that the working drawings of the new court-house for the transaction of quarter sessions business of the county of London, which the Council on July 2, 1912, decided should be erected at Newington, are in course of preparation, and it is now necessary to settle the procedure in connection with the preparation of quantities. Standing order No. 256 fixes the scale of payments to quantity surveyors in the case of works not exceeding £70,000 in value, and provides that special arrangements shall be made for works exceeding that sum. The estimated value of the architectural work included in the new court-house is £106,000, and the committee are advised that the fee in the present case should be based on a percentage of fifteen-sixteenths upon the cost. In view of the desirability of proceeding with the erection of the new building without delay, they consider that they should be authorised to invite offers for the preparation of quantities from the firms who are on the Council's approved list of surveyors, and that such firms should be asked to state the shortest period in which they would be prepared to supply the bills of quantities.

Callender's Dampcourses

have gained
First Place in Specifications
by reason of

Standard Quality,
and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from
GEORGE M. CALLENDER & CO., Ltd.
Contractors to Admiralty, War Office, Office of Works, L.C.C.
25 Victoria St., Westminster, S.W.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sewest. London." Telephone: Regent 2843.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

Melure
the perfected paint
for outside and inside.
WRITE FOR 20 PAGE HANDBOOK (naming this paper) TO:
C. CHANCELLOR & CO. LTD. 15 CLERKENWELL RD. LONDON.

Kershaw, Brassington & Co.
(ARNOLD W. KERSHAW & CO.)
LANCASTER & SETTLE
**Ventilator and
Chimney Pot Makers,
Sanitary Specialists.**
Contractors to H.M. Office
of Works and Admiralty.
Prices and Particulars on application.

To Protect

**Cement Floors against
abrasion and wear,
and the consequent
formation of cement
dust,**

Specify

Glidden's

Concrete Floor Dressing

Oil-proof, water-proof, & decorative. Made in 6 different colours.

Write for full technical details to
THE GLIDDEN VARNISH CO.,
86 Clerkenwell Road, London, E.C.

The Architect.

CONTENTS.

	PAGE		PAGE
Modern Systems of Heating	25	Principal or Agent?	42
"The Architect" Students' Sketching and Measuring Club	26	Victoria Memorial, Calcutta	43
Notes and Comments	26	Building Progress in the Provinces	43
Public Competition Designs for L.C.C. School	28	British Patent Specifications	47
Competition News	28	Correspondence	47
Illustrations:—			
House at Reigate	28		
Choir Screens, St. Paul's Cathedral	28		
Sketches by Mr. Albert E. Lowes	28		
Architecture in St. Petersburg (illustrated)	29		
The late Mr. James M. Whitelaw	32		
Royal Institute of British Architects	32		
London University	32		
The Cricket Match, A.A. v. R.I.B.A.	32		
Jubilee of Institution of Gas Engineers	32		
The Times' Crystal Palace Fund	35		
The Building Unit in the Middle Ages	35		
Excavations at Tarkhan Cemetery (illustrated)	36		
Mr. Mortimer Menpes at the Dowdeswell Galleries	38		
Work of Municipal Engineers and Surveyors	39		
Bedford College for Women (illustrated)	40		
Rural Housing	41		

FORTHCOMING EVENTS.

Monday, July 14.

London Association of Master Decorators: Annual General Meeting.

Tuesday, July 15.

Somersetshire Archaeological and Natural History Society's Meeting at Castle Cary (July 15-17).

Wednesday, July 16.

Institution of Municipal and County Engineers: Annual General Meeting and Conference at Great Yarmouth (July 16-19).

Thursday, July 17.

Architectural Association: Members' Smoking Concert and Exhibition of Students' Work, and also of Drawings by Public School Boys, at 8 P.M. Urban District Council's Association: Annual Conference at Llandrindod Wells (July 17-19).

Friday, July 18.

Architectural Association: School of Architecture; Breaking-up Ceremony at 3 P.M.

MODERN SYSTEMS OF HEATING.

DURING recent years considerable progress has been made by engineers in the development of heating apparatus, and consequently there is a still further addition to the technical knowledge that it is necessary for a modern architect to possess of all the improvements that modern application of science renders available for use in building, which constitutes an additional load to the mental equipment that our Admirable Crichton has to carry if he would not be set down as incompetent and uneducated by his clients and other members of the general public with whom he may come into contact, and who, having heard casually of some one of these improvements, actual or imaginary, expect every architect they meet to be able to tell them all about it. The day has gone by when it was sufficient for an architect to have a nodding acquaintance with hot-air furnaces, low-pressure big-pipe and high-pressure small-pipe hot-water systems as the necessary extent of his knowledge of heating apparatus.

The most notable improvement in the use of hot water for heating has been the introduction of apparatus providing forced or accelerated circulation. Accelerated circulation is produced in low-pressure hot-water systems by providing apparatus whereby the temperature of the water is raised above the normal amount, by the injection of steam or air into the flow pipe of a system, by producing a partial vacuum in a circulating tank through the condensation of steam, or by mechanically increasing the "circulating head." This increase of the circulating head is simply due to a high-water temperature, the latter being usually obtained by some contrivance that partially seals a system. Sealing devices can generally be applied to any ordinary system; they may be useful for increasing the heating capacity of an existing installation, and they are comparatively cheap. To be a success, however, ample boiler power is essential. The most popular means of partially sealing a heating system at the present time is by mercury, the appliance used taking a simple form generally described as a heat "generator." By means of this appliance the system is partially sealed, and the water may have its temperature increased to somewhere about 240° F.

Amongst the systems in which steam is used for accelerated circulation of a hot-water system are the "Reck," the "Beck," and the "Baker." The advantages from accelerated circulation are that low-pressure hot-water systems can be applied with a wider range of suitability as regards the extent to which the pipes can

be conveyed from the central source of heating, and the lessening of the deterrent effect of dips in retarding the flow of the water. The speed of circulation which can be obtained, although considerably greater than that of simple gravity systems is, however, limited.

Forced circulation possesses in a still higher degree the advantages of accelerated circulation, but involves the disadvantage of increased cost of operation and greater attention required. In forced systems some kind of centrifugal or turbine pump is generally used, this being operated by some form of external prime mover. In some of the more elaborate circulation systems of hot-water heating the temperature of the water is obtained by the use of steam heaters, either "live" or "exhaust," or both.

Steam-heating apparatus may be divided into the older and the newer forms. The former includes "high" and "low"-pressure systems, in which the pressure in the return pipes is greater than that of the atmosphere. In the latter, the heating surfaces and the return mains are open to atmospheric pressure. The principal drawbacks to the earlier types of apparatus are—the temperature of the heating surfaces cannot be regulated by the valves, they must either be fully on or off; the steam at all times must exceed in temperature 212°, irrespective of external conditions; they are less economical than corresponding systems in which water is used; clicking or hammering sounds are often produced by obstructions caused by condensed water and a certain percentage of the heating surfaces is ineffective. In the newer forms of apparatus most of the drawbacks incidental to the earlier forms of apparatus have been removed.

High-pressure steam heating is usually confined to places where high temperatures are required, such as drying-rooms, stoves, Turkish baths, &c. It is unsuitable for general heating work on account of the highly heated surfaces affecting the quality of the air.

Although there is no precise definition of the term "low-pressure," it is generally understood to be associated with a system in which the steam pressure is less than 10 lb. per square inch. Low-pressure steam heating is suitable for factories, large public and private institutions, and for buildings that are irregularly heated, and where there would be danger of a water system being damaged by frost.

The term "atmospheric" is used in connection with steam installations where the pressure falls to that of the atmosphere upon steam entering the heating surfaces, or,

in other words, atmospheric systems are those in which the radiators or other heating surfaces and the return mains are open to the air. Thus no resistance is offered to the return flow of the water of condensation other than that due to pipe friction. The steam supply is also restricted to the amount the radiator or other surfaces can condense. The boiler pressure or other source of steam supply is limited to a few ounces per square inch. The advantages of atmospheric systems are—the lower temperature of the heating surfaces, the degree of regulation afforded by the radiator valves, and the units into which a plant can be divided with a simple arrangement of piping. Their operating costs are also less than those of ordinary steam systems, but from an economical standpoint it is essential that suitable appliances should be used to prevent waste of steam.

Vacuum and vacuo vapour systems of steam heating are very numerous, but for the purpose of classification may be divided into two principal groups—namely, “semi-positive” and “positive.” Semi-positive systems are those in which the vacuum created is principally due to the condensation of steam in the heating surfaces themselves, whilst in the case of positive systems external agencies are employed, such as injectors, condensers, and pumps. The positive group of vacuum plants may further be sub-divided into two classes: (a) those in which the air and water of condensation from the heating surfaces are conveyed by separate channels, and (b) those in which the air and condensation are discharged through one and the same pipe. The advantages generally claimed for vacuum systems are: (1) the effectual removal of air from the radiator or other heating surface, thereby increasing the efficiency of the latter for the transmission of heat; (2) the efficient drainage of the water of condensation; (3) flexibility with regard to temperature regulation and the arrangement of the piping; (4) comparatively low working costs; (5) freedom from clicking and hammering sounds.

On the other hand, vacuum systems have their limitations, the failings that arise being: (a) difficulty in maintaining the requisite degree of vacuum; (b) the periodical flooding of return pipes and its attendant noise; (c) the attention necessary to keep the appliances in proper order.

Excellent information on these modern heating systems to which we have referred, including also an account of the older methods, is contained in a book* on “Heating Systems,” by Mr. F. W. Raynes, which has recently appeared. In this will be found full and accurate descriptions, illustrated by numerous clear diagrams, which will enable the architect to make himself acquainted with the precise operation of the modern types of apparatus that are now available for heating of buildings whether of simple or complicated nature; herein, too, he will find illustrations and descriptions of some of the many forms of fittings which go to make up the efficiency of modern heating apparatus. Chapters are also included giving instruction on the methods of calculating the necessary amount of heat to be supplied to buildings and to the efficiency that can be obtained from apparatus.

Another new book† which has recently appeared on the subject of “Heating and Ventilation” is that by Professor Arthur M. Greene, jun., which is written especially from an American point of view and deals therefore particularly with the central heating of small types of buildings, such as houses and schools, which in the United States are more frequently so provided than

in our own country. It follows, therefore, that the apparatus and fittings described and illustrated are for the most part things of American manufacture. But for information concerning the heating and ventilation of small buildings Professor Greene's book is most valuable.

“THE ARCHITECT” STUDENTS' SKETCHING AND MEASURING CLUB.

WE are pleased to have received a goodly number of drawings of fourteenth-century church windows, which are mostly well chosen and adequately studied.

Mr. Claude Lancaster has selected his example from St. Giles' Church, Sandiacre, Derbyshire, a good piece of curvilinear work, apparently carefully measured. Further details would have been desirable.

“Isis” has measured a cloister window from New College, Oxford, which, being late in the century, is distinctly Perpendicular in character. Full-size sections are given, but on these the centre line of secondary order of mullions should have been shown.

“Plato” sends a drawing of the five-light chancel window of Lindfield Church, Sussex, a fine and interesting example of reticulated treatment merging into flowing curvilinear tracery. A large-size, carefully worked out detail of this is a good feature of “Plato's” work.

“Improver's” selection is the east window of the church of St. Mary, Morpeth, an example of pure reticulated pattern, marred apparently by the crippling of the repeated form at the head of the window. This point is always a difficulty with designers of this type of tracery, and we think the usual plan of allowing the reticulation to be cut by the arch is the better solution. “Improver” has well studied the mouldings of his subject, which are quite interesting. We are glad to see that our contributor has vindicated his non-de-plume this month.

“If” sends a drawing of a window from the north transept of Christchurch Priory, Hants, the form and tracery of which is distinctly thirteenth century, though the mouldings have a Decorated character. It must, however, be remembered that such mouldings are used in thirteenth-century work, and indisputable documentary evidence would be required to ensure its acceptance as work of the fourteenth century.

“Alpha” also has measured and drawn the east window of the church of St. Mary, Morpeth, which gives us an opportunity of comparison with the drawing by “Improver” of the same subject. The crippling referred to in our notice of “Improver's” drawing is less offensive and practically non-existent in “Alpha's” rendering, which is well drawn and thorough.

We award prizes this month of one guinea each to “Plato” and “Alpha.”

With our examination of these drawings we come to the award of our Travelling Studentship for the year, which has been won by Mr. H. St. John Harrison, whose work under the non-de-plume “Alpha” has appeared amongst our contributions every month, and has been of excellent quality. His nearest competitor has been “Plato,” whose work is also excellent, but who has not contributed every month.

NOTES AND COMMENTS.

THE practical result of the deputations received on Thursday last by the Prime Minister on the subject of the planning of main arterial roads in greater London, of which we gave a notice in last week's issue, appears to be that a conference is to be held, and that, in the words of the Prime Minister, “all the various interests—and they are many—some of which at first sight appear to be in conflict, shall be heard in mutual conference.” This, he thinks, would enable the various local authorities of greater London and its outskirts to tide over the immediate problem that lies before them. It also enables the Government to put on one side for a time their duty of grappling with the problem, and defers for the moment what the Prime Minister rightly called the

* *Heating Systems.* Design of Hot-water and Steam-Heating Apparatus. By F. W. Raynes, Consulting, Heating, and Ventilating Engineer; Lecturer on Heating and Ventilating, the Royal Technical College, Glasgow. With illustrations. (London: Longmans, Green & Co. 10s. 6d. net.)

† *The Elements of Heating and Ventilation.* A text-book for Students, Engineers, and Architects. By Arthur M. Greene, jun., Professor of Mechanical Engineering, Russell Sage Foundation, Rensselaer Polytechnic Institute; sometime Junior Dean School of Engineering, University of Missouri. (New York: John Wiley & Sons. London: Chapman & Hall, Ltd. 10s. 6d. net.)

larger question as to the central authority, though he confessed that he was "very much impressed with the view that there ought to be some authority—as to what should be the character and position and the precise functions of any authority which might ultimately seem to be the best fitted for the purpose in regard to the general survey of schemes of this kind." This larger matter he reserved for further consideration.

The town planning of greater London presents two distinct, though allied, problems: the co-ordination of the various town-planning schemes which under the Act of 1909 local authorities are taking in hand, with the co-operation of landowners and other persons interested in town-planning schemes within their own area, and the provision of arterial roads. Naturally there is a tendency on the part of each local authority to regard their particular schemes from their own point of view, and their attitude towards arterial roads is rather that of hopefulness that the advantages of such roads may be theirs and the cost deferred by somebody else.

We are not sanguine that the conference will be productive of great benefit unless—and with the President of the Local Government Board as chairman there is some hope of this—some sort of consensus of opinion is reached that may indicate the nature of the central authority which to our minds is essential for the right provision of arterial roads.

The problems of Metropolitan traffic are in a lesser degree those of other large towns and the manufacturing districts of the North of England, which have been revolutionised during the past few years by the development of motor propelled traffic. The development of this traffic indicates a necessity for a well-conceived system of arterial roads embracing not only greater London and its outer fringe, but the whole Kingdom. No amount of conferences of local authorities will ever be able to adjust the main points that should regulate the provision of a sound scheme of arterial roads, and a central dominant authority is an urgent necessity.

The case of *Bowling (B. Ward & Co.) v. Sanders*, of which we give a brief report in another column, is worthy of note as emphasising the care that should be exercised by architects when ordering goods or work from sub-contractors on behalf of their clients. It is absolutely necessary that the architect should be able to prove that the sub-contractor knew that the architect was acting as agent and not as principal when he gave the order. Our own practice has always been to make the builder give the order, and let the sub-contractor know that he has to get an order from the builder. This, we think, is the better way.

Another piece of law which should always be borne in mind by architects, especially in their early practice, is illustrated by the case of *Buckley v. Millstreet District Council*. This case, after being originally tried at the Cork Assizes before Mr. Justice Ross and a common jury, was subsequently taken to appeal in the King's Bench Division and, last of all, to the Court of Appeal before the Lord Chancellor, Lord Justice Holmes, and Lord Justice Cherry.

Mr. Buckley was an engineer employed by the Millstreet District Council to superintend the erection of 227 or 228 cottages, and he brought an action for recovery of fees amounting to £111 and damages for alleged wrongful dismissal. The jury in the first instance found for the plaintiff in £100 for wrongful dismissal and £111 for services rendered. Judgment, however, was entered for the defendants on the ground that as the contract was not under seal the action was not sustainable. Both in the King's Bench Division and in the Court of Appeal Mr. Buckley lost his case because his employment by the District Council was a contract with a public board exceeding £50 and not executed under seal. Lord Justice Cherry, in agreeing with the decision of the other mem-

bers of the Court of Appeal, expressed his opinion thus: "I arrive at this conclusion with much regret, as I consider it a case of great hardship towards the plaintiff. Any language, in my opinion, could not be too strong to condemn the action of the Millstreet District Council in evading their clear duty by not having this contract under seal, thus securing, by what looks very like a trick, the professional services of a gentleman without incurring any liability for the payment of these services."

The result of the action brought by Mr. John Arthur James against the Otis Elevator Co. for damages for alleged breach of contract to erect and maintain one of their lifts at his house in Grafton Street, Piccadilly, which it was alleged had been the immediate cause of the death of the Duc de Lorge, who was a guest at Mr. James's house in July of last year, and who, on opening the door of the lift, fell down the shaft, whilst resulting in complete clearance from blame of the Otis Elevator Company shows how dangerous it is for amateurs to interfere with the work of specialists. The lift, although originally erected by the Otis Elevator Co., appears to have been altered by someone else.

This month's number of *The Connoisseur* takes the form of a souvenir number of their Majesties' visit to Liverpool, hence Liverpool matters bulk largely in its contents. The Walker Art Gallery is described in an illustrated article by C. Reginald Grundy, and the Liverpool public museums and their contents by Dr. Joseph A. Clubb, the curator. Of some architectural interest is an illustrated article on Sulgrave Manor, the ancestral home of George Washington, which introduces "The Connoisseur Fund" for the proper maintenance of Sulgrave Manor as a sequel to the proposal of the British Committee for the Celebration of the Hundred Years Peace amongst English-speaking peoples, to purchase Sulgrave Manor and to maintain it in perpetuity as a rendezvous and place of pilgrimage for Americans visiting England. After its purchase the sum of £1,000 per annum is likely to prove necessary for its suitable maintenance in the future, and *The Connoisseur* is starting the fund to provide this £1,000 per annum, for which donations or annual subscriptions will be gladly received and acknowledged by the Editor of *The Connoisseur*.

The decision of the Archbishops of Canterbury and York to form a committee to ascertain what steps are taken, on the issue of faculties in the different dioceses, to secure due protection, on both archaeological and artistic grounds, for church fabrics which have to undergo repair or in which changes are being made is to our minds somewhat belated, and only the result of apprehension as to what may be included in the Bill now before Parliament for the Protection of Ancient Monuments. The leaders of the Church of England ought long ago to have taken steps to ensure that proper care should be taken to secure due protection for ancient monuments, whether church fabrics or church property, as the necessity for statutory protection of ancient monuments has arisen as much as anything from the neglect of churchmen to preserve the artistic treasures of the past of which they have happened to be for the time the custodians. The Committee now appointed is a strong one and consists of Sir Lewis Dibdin, D.C.L., Dean of the Arches; Sir Alfred Kempe, D.C.L., F.R.S., Chancellor of the Diocese of London and of the Dioceses of St. Albans, Southwell, Peterborough, and Chichester; and Sir Charles E. II. Chadwyck-Healey, K.C.B., K.C., Chancellor of the Diocese of Exeter and formerly also Chancellor of the Dioceses of Salisbury and Bath and Wells; with Mr. E. V. Oliver, Ecclesiastical Commission, Millbank, Westminster, as secretary. The Committee has held its first meeting.

PUBLIC COMPETITION DESIGNS FOR L.C.C. SCHOOLS.

REPORTING upon the acceptance of tenders during the Whitsuntide Recess for various building works at L.C.C. schools, the Education Committee this week stated that the lowest tender for the erection of a new school at Vernon Square, Finsbury, was £2,383 in excess of the amount previously sanctioned by the Council, and that a reduction from £30,943 to £28,554 had been agreed with the contractors by variation of certain items in the specification.

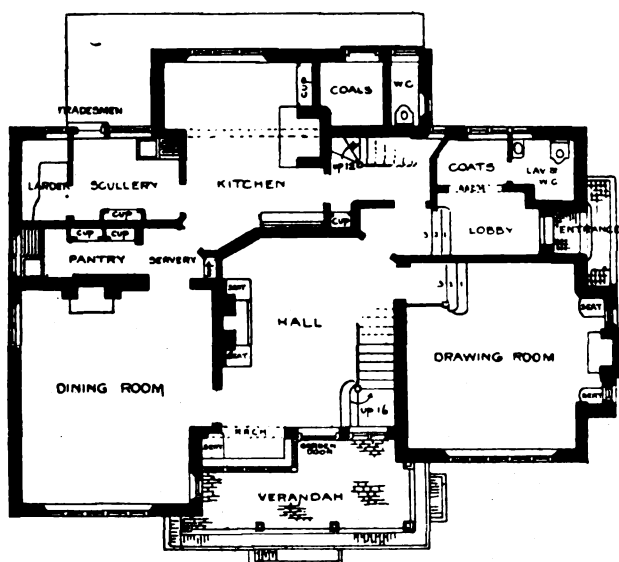
At question time Mr. R. I. Tasker asked whether, in the proposed competition amongst private architects in respect of school buildings, the successful competitor would be permitted to reduce his estimate by 7½ per cent. by variation of certain items in the specification after tenders had been received, in accordance with the precedent which had been set in the case of Vernon Square School?

Mr. John Gilbert (chairman of the Committee) replied that details of the scheme for public competition had not yet been considered.

Mr. Tasker: Arising out of that answer, may we hope to live long enough for the details of the competition to be furnished?

No answer was given.

Commenting later in the proceedings on the general school-building programme of the Council, Mr. Tasker said



GROUND PLAN

a police court and accommodation for the police, at a cost not to exceed £30,000. An assessor is to be appointed by the Royal Institute of British Architects.

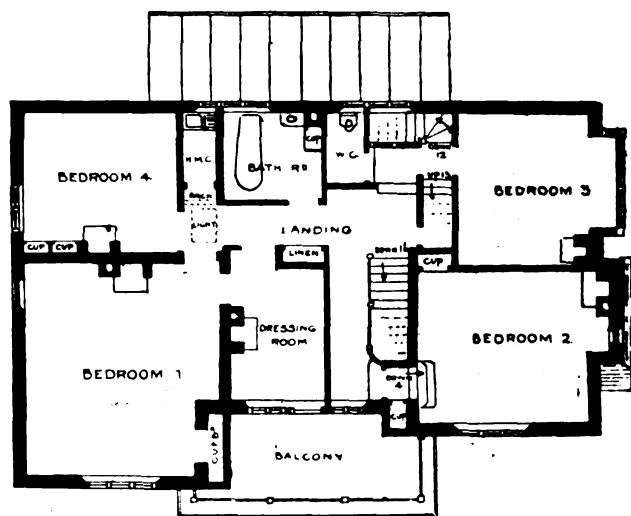
MOSSLEY.—The result of the competition for the proposed Council School at Foxplatt, Mossley, is as follows:—First premium (£15 15s.), Messrs. Easton, Sons & Cantrell, Ashton-under-Lyne; second premium (£10 10s.), Mr. F. Quentery Farmer, Liverpool and Coventry. The assessor was Mr. J. H. Woodhouse, F.R.I.B.A., of Manchester.

YORK.—The City Council at their meeting on Monday last agreed to advertise for competitive town-planning schemes forthwith. An assessor or assessors will be appointed in due course. Dr. Tempest Anderson has contributed £100 as a first premium. The second and third prizes will be £50 and £25 respectively.

ILLUSTRATIONS.

HOUSE AT REIGATE.

THIS has lately been erected on sloping ground facing south, necessitating a garden more or less terraced. The exterior is finished in white rough-cast, the roof of hand-made antique tiles, with verandah and balcony in oak. All the external woodwork is treated with brown preservative.



FIRST FLOOR

HOUSE AT REIGATE.

that by its Architect's Department the Council was depriving the architects of London of the opportunity of earning a proper livelihood, and the ratepayers were being deprived of full value for their money.

The report of the Committee was adopted.

COMPETITION NEWS.

BLACKBURN.—The Corporation have decided to invite architects having offices in Blackburn to submit competitive plans for the erection of a new fire station and firemen's dwellings on the "Wrangling." Mr. F. G. Briggs, F.R.I.B.A., has been appointed the assessor.

CANADA.—The Canadian Government, as we announced on June 20, have decided to obtain designs from architects of the British Empire for the proposed Government Buildings at Ottawa. In addition to the particulars thus given, it is now stated that the successful competitor will carry out the work, and that the five competitors next in order of merit will each receive 3,000 dollars.

IRELAND.—Mr. J. J. Inglis, M.I.C.E.I., architect, Nassau Street, Dublin, has been selected by the Monaghan Urban Council to prepare a scheme for converting the military barracks into workmen's dwellings and for erecting new houses. The total cost must not exceed £4,000.

LINCOLN.—The Board of Guardians have this week referred back a recommendation by their Building and House Joint Committee that local architects should be invited to prepare competitive plans for the proposed infirmary of 200 beds in Burton Road.

MIDDLETON.—The Town Council are about to invite competitive plans for the erection of a new town hall, to include

The principal features of the house are the oak-panelled hall, with red-brick fireplace, oak staircase, and secondary staircase for servants' use.

The house has been erected from plans prepared by Mr. C. E. Salmon, M.S.A., and built by Mr. E. Worsell, builder, of Redhill.

CHOIR SCREENS, ST. PAUL'S CATHEDRAL.

THIS drawing shows one of Tijon's beautiful screens dividing the choir aisles from the apse. Its delicacy and extreme excellence of workmanship form a very good example of the work of that period. There are twenty-three sconces for candles to each screen.

SKETCHES BY MR. ALBERT E. LOWES.

THESE drawings of typical west-country architecture were made by Mr. Lowes, who held "The Architect" Travelling Studentship in 1911, and has since obtained the Glover Studentship of the Northern Architectural Association.

THE London Mansion House Committee of the Captain Scott Fund recommend that £8,000 out of the £75,000 subscribed should be expended as follows:—(1) The provision of a suitable memorial tablet in bronze in St. Paul's Cathedral, sanction for this having been given by the Dean and Chapter. (2) The erection of a sculptured monument in bronze in a public place in London (preferably the space immediately behind the railings in Hyde Park, fronting Lowther Lodge, the new home of the Royal Geographical Society), to contain the figures of the five dead men, by a sculptor of approved eminence to be hereafter selected.

ARCHITECTURE IN ST. PETERSBURG.—II.

We have described in the first portion of this article the process by which the revival of classicism in St. Petersburg was brought about. Now we come to what has been actually accomplished in this field, to the peculiarities of work, and the achievements of different architects. For information on this subject we are greatly indebted to the article we have already quoted by M. George Lukomsky, a young Russian architect who achieved considerable distinction in the field of painting and artistic criticism, in both of which he has shown himself to be an enthusiastic admirer and advocate of the classical traditions.

The field in which St. Petersburg architects have principally been exercising their activities has been that of constructing profit-bringing houses. These are mostly mansions (in accord with the prevailing fashion on the Continent), the ground floors of which are very often used for shops. Considerable building activity has also been displayed by banking houses and some business houses, and it must be stated to their credit that they showed themselves fully awake to the demands of the new movement. Naturally

the old bazaars in St. Petersburg "protect from rain." The custom, however, has long ago fallen into desuetude, and though it is sometimes advocated (as, for instance, in M. Lukomsky's article), it is hard to believe that it could be revived now. In fact one might think our six or seven storeyed houses would look as much without sufficient support when on columns (unless they have open galleries) as they now appear on plate glass.

The general treatment of the façades of mansions on classical lines presented fewer difficulties. The theory of designing a building in such a way as to make its character as a whole and the character of the separate parts, as far as their purpose and importance are concerned, to expressly reveal themselves in the façade loses much of its rigidity when applied to Russian mansions. The reason for this lies in the very notion of a residential house as popularly held in big Russian cities. Nothing could be more distant from it than the type of picturesque, a symmetrical and country-like houses which are now so familiar in the suburbs of London. Owing to a greater development of social life in Russia as compared with England, and to a



HOUSE OF M. POLOVTZEV ON THE KAMENNY ISLAND.—M. FOMIN, Architect.

the requirements of modern buildings are greatly different from what they were in the days of Alexander I. Instead of large palaces for the nobility, the modern architect has to construct houses with shops and cosy flats for middle-class occupants, and the real problem he had to face was to find a way in which to adjust the classical designs to these requirements. The shop window, for instance, presented the first great difficulty, and, so far as we can judge, it has not yet been satisfactorily overcome. Most young architects contented themselves with the usual square openings and the iron girder as a support to the wall—a solution which least of all could suit a Classic façade. Others introduced arches and columns, and in individual cases apparently achieved greater success. M. Lukomsky mentions as an instance a house in which the shop windows are so skilfully placed behind the prominent columns "as to be hardly noticeable." Alas! even this could not be called a solution of the problem, for shop windows which are unnoticeable are hardly worth their name in our time. In the day of Peter the Great, when the bazaar on the Vassilievsky Island was being built, it was prescribed by the Tsar that it should be surrounded by an arcade, "so that the public could be protected from the rain." So most of

lesser strictness and rigidity of distinctions dividing social orders, the desire to imitate the upper classes becomes the governing motive of the orders below them, and as a consequence the feature of a building that would most appeal to a middle-class Russian is not so much cosiness as stateliness and splendour. Huge blocks of mansions of a uniform classical design seem to answer the desire for palatial appearance better than houses in other styles, and this will probably secure their popularity for a long time.

Amongst the features of the new houses built in St. Petersburg it is interesting to note the attempt to introduce mansard roofs, which are nearly unknown in Russia. In St. Petersburg the attempt was more or less successful only where the roof was disguised by means of a parapet, or the mansard storey was in some way masked. But considering the general character of the St. Petersburg houses, with their flat roofs, this innovation must be recognised as hardly a happy one.

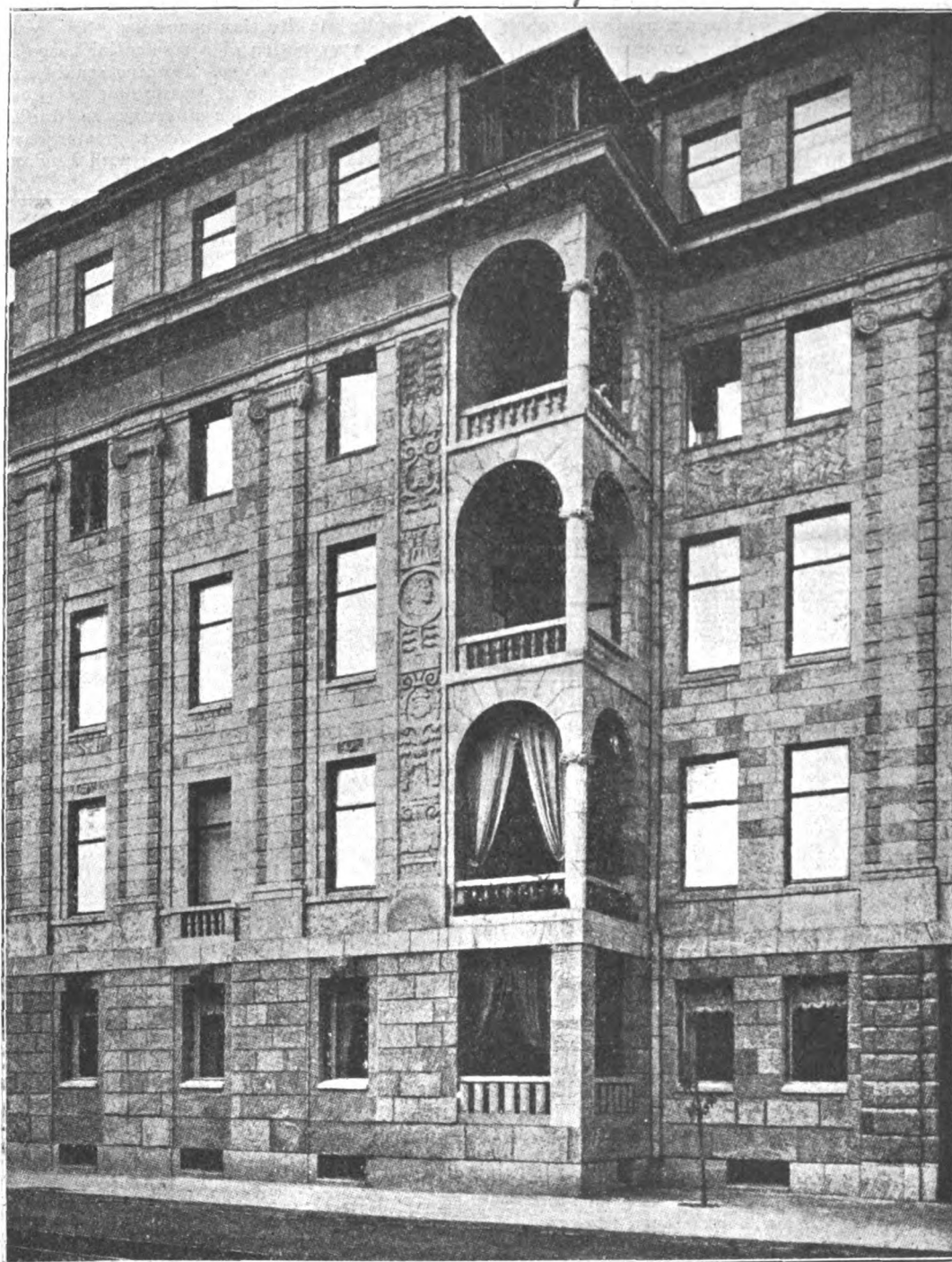
From the general characteristics we now come to individual architects and their creations. The most prominent representative of the new movement is M. Fomin. With the majority of young architects he started as an avowed follower of the modern style. But soon he began to study the

'B

classical architects of Moscow, where he was working at the time. It must be noticed here that in the beginning of last century Moscow was enriched with a great number of magnificent buildings in the classical style, constructed by Bajenov, Kazakov, Bovée, Jillardy, and others, all architects of exceptional gifts, particularly Kazakov and Jillardy. This Moscow classicism had some influence upon Fomin, but the classical tendency was particularly strengthened after his return to the St. Petersburg Academy of Arts and his subsequent travels to Egypt and Rome. In the Roman erections of the first century he found his style of big, heavy proportions, large entablatures, and forests

this scheme only one house has actually been built, as it appeared too extravagant to the owners of the site. The latter is now being built up by the architect Lidval, who has designed houses on much less ambitious lines.

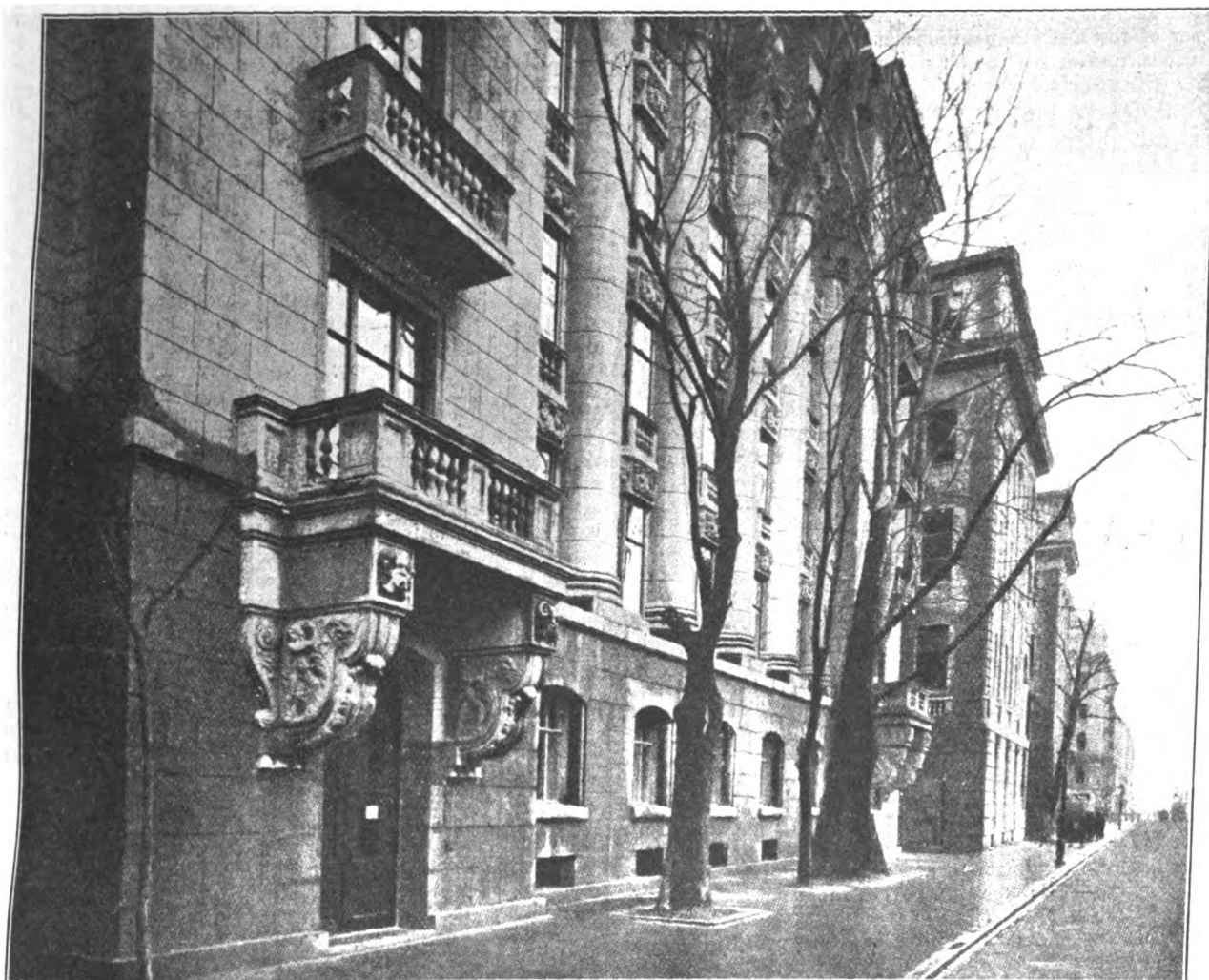
But if M. Fomin is an architect of palaces *par excellence*, M. Stchuko—another St. Petersburg architect—is distinguished as a master of the mansion's façade. Like Fomin's, his allegiance to classicism began with a study of the Russian Empire style. This was followed by a journey to Italy and a close study of Palladio and Giulio Romano. The Italian influences are revealed in the splendid façades of the house in the Kamennooostrovsky Prospect—one of the finest streets



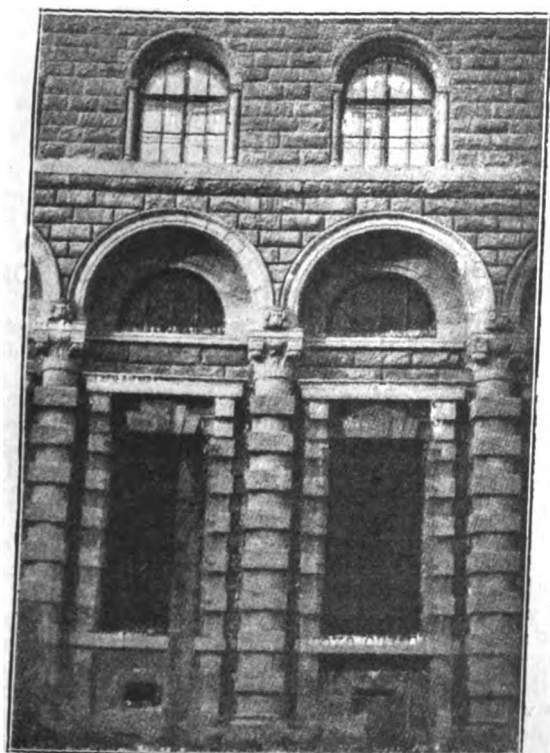
HOUSE OF M. MARKOV IN THE KAMENNOOSTROVSKY PROSPECT.—M. Stchuko, Architect.

of columns. The house of Polovtzev is an impressive example of such monumental design. Unfortunately many of Fomin's designs have never been carried out. Perhaps one of the reasons of this lies in their very grandeur and extravagance. He, for instance, projected a scheme for building up a waste manufacturing district known as the Island of Goloday with a series of monumental mansions designed so as to produce the effect of one great ensemble. There was to be a semicircular open space of 700 feet in diameter, with the streets radiating from it, and the houses surrounding the space joined with each other by means of arches supported by innumerable columns. Out of all

of St. Petersburg. The façade with semi-columns is absolutely imposing. The columnar order is carried through the whole height of the building, and even the entablature is broken, giving place to the upper storey. The composite capitals look majestic, and, with the rusticated semi-columns, give to the building a rich and sumptuous appearance. Exception might be taken to the supports of the balconies, which are treated in the Baroque style, and, as M. Lukomsky rightly points out, do not well harmonise with the strict Palladian proportions of the façade. The adjoining façade of the same block of houses is designed on a less pompous scale. Its peculiar feature is the graceful small loggias,



HOUSE OF M. MARKOV IN THE KAMENNOOSTROVSKY PROSPECT.—M. Stchuko, Architect.



DETAIL OF THE ST. PETERSBURG COMMERCIAL BANK.
M. PRZETIAKOVITCH, Architect.



HOUSE OF M. BIKHOVSKY.—M. LIALEVITCH, Architect.

rusticated pilasters, and ornamentation in sgraffito, which give the whole a soft and pleasing effect. Stehuko was the designer of the Russian pavilions at the Rome and Turin exhibitions, and of the project of the Nicolaevsky Railway Station (the principal station in St. Petersburg), which has been accepted by the Government but has not yet been carried out.

(To be continued.)

THE LATE MR. JAMES M. WHITELAW.

WE announce with regret the death of Mr. J. M. Whitelaw under peculiarly tragic circumstances on Saturday last, the 5th inst. The following account of the sad accident is taken from the *Bournemouth Daily Echo*:—

"A distressing bathing fatality occurred on Saturday afternoon, when a visitor, a young student of architecture, named James M. Whitelaw, was drowned. A fellow-student made an heroic attempt to rescue him.

"Mr. Whitelaw belonged to Uddingston, in Lanarkshire. He was a brilliant student of architecture and a silver medallist of the Royal Institute of British Architects. He had been invited down to the Bournemouth district by a friend, Mr. Shoosmith, whose parents reside at "Saima," Ettrick Road, Branksome Park.

"On Saturday afternoon the two young men went for a bathe in the sea near Branksome Chine. Mr. Shoosmith swam out to the bathing float, leaving Mr. Whitelaw to follow. On looking round, however, he saw his friend was not getting on very well, and he went back to assist him. He found him to be then in difficulties, and put his hands under his friend's chin. However, he could not succeed in getting him to the shore before Whitelaw sank.

"Mr. Shoosmith dived two or three times to reach his friend, but was each time unsuccessful. He then called for assistance, and Mr. Francis Beckingham put out in a boat. Mr. Shoosmith again dived, and this time succeeded in reaching the drowning man and brought him up. He was placed in the boat and taken to the shore with all possible speed.

"Dr. Barrett, of Alum Chine Road, happened to be passing, and he commenced artificial respiration. These efforts, however, proved unavailing, and Dr. Curtin, who also came to assist, could only pronounce life to be extinct."

It will be remembered that Mr. Whitelaw in January last was awarded the Soane Medallion and £100 out of fourteen competitors for his "Design for a Railway Station."

Among the honours won by this promising young man were the following:—Herbert Batsford Prize (£5 5s.), 1910; prize of £20 and silver medal at the Royal Academy.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

IN the particulars for subjects X., XI., and XII. of the alternative problems in design, which appeared in our last week's issue, p. 7, we are requested to announce the following modifications:—

Subject XI. (b).—The words "A Country Club" should read "A County Club."

Subject XII. (b).—"Clubrooms" should read "Club-room."

LONDON UNIVERSITY.

THE annual exhibition of the drawings done in the School of Architecture at University College during the session opened on Saturday, July 5, and will remain open daily (Sundays excepted) until Saturday, July 19. Hours: 10 A.M. to 6 P.M. The Exhibition will be held in the Science Library in the main buildings of the college, the entrance to which is from Gower Street. Admission is open to the public.

MR. W. JACQUES, A.R.I.B.A., 2 Fen Court, Fenchurch Street, E.C., is the architect for the new school about to be erected in Rosetta Road, Custom House, Victoria Docks, E., for the West Ham Council.

THE work of excavation at the Roman town of Uriconium has been resumed. It was begun last year by the Society of Antiquaries, acting jointly with the Shropshire Archaeological Society. The work will be carried out, as last season, under the supervision of Mr. J. P. Bushe-Fox. Last year about two acres were excavated, and many interesting discoveries were made.

THE CRICKET MATCH, A.A. v. R.I.B.A.

THE challenge thrown out by the President of the Architectural Association at the annual dinner of that body and promptly accepted by the President of the Royal Institute of British Architects resulted in an excellent match last Wednesday. A thoroughly enjoyable game and some good cricket ended in a victory for the Association, who scored 212 runs to 195 compiled by the Institute team. As the Association by the luck of the toss had the advantage of the first innings, whilst the Institute were handicapped by indifferent light in the latter part of the afternoon, it cannot be said that the victory of the organised team of the A.A. over the scratch collection of players of the R.I.B.A. represented a thorough licking. The high scoring, for a one-day match, is the result of the ease with which boundary hits for 4's were obtainable. Thus for the Association Mr. Doll made ten 4's, Mr. Slater six, Mr. Archer four, and the President, Mr. Curtis Green, three; whilst for the Institute Mr. Brocklesby made fourteen 4's and a 6, the President, Mr. Reginald Blomfield, four 4's, Mr. Newton and Mr. Hadwen three apiece, Mr. Sutton and Mr. Wass two each, and other players on both sides one. The best bowling averages were made by Mr. A. Needham Wilson for the Institute, who took four wickets for 26 runs, and Mr. E. J. T. Lutyens for the Association, who captured six wickets for 44 runs. We append a list of the batting scores. We understand that both sides are eager that the capital day's sport may be the first of a series of annual matches between the A.A. and the R.I.B.A.

ARCHITECTURAL ASSOCIATION.

Mr. E. J. T. Lutyens, c Blomfield, b Sutton	1
Mr. J. A. Cheston, b Brocklesby	20
Mr. M. H. C. Doll, c Nicholls, b Wass	56
Mr. N. S. Robinson, b Wilson	4
Mr. J. A. Slater, b Wass	45
Mr. H. C. Benson, c Brocklesby, b Wilson	4
Mr. T. F. W. Grant, lbw, b Wilson	10
Mr. S. M. P. Sheppard, st White, b Wilson	0
Mr. H. D. Archer, b Brocklesby	33
Mr. H. E. C. Claydon, not out	12
Mr. W. Curtis Green, b Wass	22
Byes, 4; leg-bye, 1	5
	212

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Mr. W. Newton, c Robinson, b Benson	23
Mr. N. W. Hadwen, b Benson	12
Mr. C. A. L. Sutton, c Clayden, b Benson	13
Mr. J. S. Brocklesby, b Lutyens	84
Mr. F. H. Swindells, b Lutyens	4
Mr. F. J. Wass, c Cheston, b Doll	15
Mr. Reginald Blomfield, c Robinson, b Lutyens	22
Mr. H. White, b Lutyens	9
Mr. F. Nicholls, c Doll, b Lutyens	0
Mr. A. Needham Wilson, c and b Lutyens	0
Mr. V. T. Hodgson, not out	4
Byes	9
	195

THE JUBILEE OF THE INSTITUTION OF GAS ENGINEERS.

SIR CORBET WOODALL, who has most fittingly been elected by the members of the profession of which he is the distinguished head to preside over their Institution at its Jubilee meeting, referred in the presidential address delivered at that meeting to subjects of even wider interest and greater national importance than the admittedly interesting and important subject of the public gas supply.

After an interesting review of the century of public service which the gas industry has completed (with its steady advance in efficiency and its widespread development, not only for lighting but also for its multifarious uses other than illumination), and of the fifty years of useful work performed by the Institution of Gas Engineers—with a reference to the excellent service now being rendered to both the industry and the public by the British Commercial Gas Association, whose birth gave signal evidence of the vitality of the hundred-year-old industry—the President proceeded to comment upon the human aspect of the industry, especially in regard to the workers employed in it and their relations to their employers.

At the time when sociological questions are receiving more than formerly of the attention which is their due, and

when "industrial unrest" is a constant topic of discussion in all thoughtful circles, the considered words of so prominent and respected a "captain of industry"—and friend of the working-man—as Sir Corbet Woodall will be read and noted with much interest. His first comment was upon the great difference for the better in the *personnel* of the industry, compared with earlier days, from the labourer upwards, notably in regard to sobriety and intelligence.

Looking back, say, thirty years, said Sir Corbet, those of us who were then old enough to be in active charge of gas-works will remember the anxiety—I might say, the disgust—with which we regarded each week-end. Men who were excellent and dependable workers through the rest of the week would either be absent or present themselves in a condition which made them a danger to themselves and to others. Not infrequently plant was rendered idle to an extent which interfered with the adequate supply of the district. The wages then were lower relatively to the cost of living than they are now; but the proportion spent on drink was far greater.

What a change from this is our present-day experience! Throughout the country, I believe—certainly in London, so far as my observation goes—the drink trouble has absolutely vanished, and the men's attendance is in no way affected by the recurrence of pay day. This reform is due, doubtless, to the better education of recent years, not only of the men themselves, but also of their children, who bring into the home an atmosphere in which the old coarseness of life does not thrive. Fifty years ago, for men living in towns the only place of amusement or recreation (so-called) was the public-house, which was always open. Very few places offered allotment gardens to profitably occupy the spare time of working men; and of free libraries and reading-rooms, or the power to make use of them, there was no sign. The formation of associations of workmen, with the accompanying development of the sense of common interests, experience of power, and the responsibility attaching to its exercise, have been strongly stimulating to the workman's intelligence, and the substitution of machinery for the heaviest kinds of hand labour in retort-house work and elsewhere has aided this movement. Such changes of method, whereby a premium is put upon brains and character in preference to brute strength, have involved a change of outlook on the part of the workman, not only in our own industry but generally. As a consequence, the pendulum shows a tendency to swing far in the opposite direction to that originally occupied. "The old order changeth, yielding place to new."

Evidence of another kind, but to the same purport, is to be found in the accommodation provided in most gas-works for the health, comfort, and convenience of the men, which is often of a superior order. Rooms for dining, bathing, dressing, games, and simple rest are general. So also is the provision for old age by way of pensions; holidays with payment—the same for Territorials; games grounds; and aids to thrift. Many of these ameliorations are of recent date; but regarded in the mass, and over the stretch of fifty years, the advances are little short of wonderful.

Concerning Co-Partnership.

It is, I think, impossible, added Sir Corbet, for any observant person to watch the features and incidents of the industrial question, as they are daily, almost hourly, reported in the newspapers, without acquiring an uncomfortable impression that this department of our social organisation is painfully out of joint. Nothing seems certain in the world of industry at large except strikes and rumours of strikes, conciliations that do not seem to stand any strain, revolts of trade unionists against free labour, wars of trade union against trade union. Here we find employers banned for refusing to "recognise" unions; there employers who because they have done so find themselves burdened, not merely, like the unfortunate Sinbad, with one Old Man of the Sea, but with several. It is apparently as bad, or worse, to "recognise" the wrong trade union as to turn a blind eye to all. Trade unions themselves cannot keep peace in their households. It is all a vortex of strife, dissatisfaction, disappointment, and all the ills, in short, that go to discredit the present stage of civilisation.

The fountain and source of most of this industrial unrest is the wages system, or rather, let us say, the abuses which have encrusted and corroded the original idea of the payment of a fair day's money for a fair day's work. The bargain has been lop-sided, with a bias now on one side, now on the other. The shifting power in the case is known as the law of supply and demand; and the law-giver is

"Necessity." Up to a point in historic time, and at all times up to a variable level of equality of power, the wage-payer has had the upper hand. That he often abused his advantage there can be no dispute, in view of the history of the Factory Acts, the condition of the agricultural labourer in the time of landlords' and farmers' prosperity, and the present existence of "sweated employments." When an employer can say to an applicant for work, "This is my rate of pay; take it or leave it, there are plenty who'll jump at it," it is an abuse of language to describe it as equal bargaining.

This is rather the condition that renders possible the wrong poetically described as "Grinding the faces of the poor"; or, less elegantly, "Sweating the worker." Indeed, so far as I understand the term, a sweated industry is simply an employment in which the paymaster has a call over those who are willing to work which is scarcely limited at the brink of the workers' starvation, because the value of the labour is liable to be depressed by willingness to accept almost anything on the part of some who are not really dependent upon their earnings for a livelihood.

With the exception of the weaker classes of labour, which for various reasons we shall always have with us in every social grade, the call of labour for better remuneration has risen of late years above the power of the employer to control—arbitrarily, that is to say. Of course, if the job is not worth the money, there can be no deal. Short of this limitation, however, there should be no difficulty in working a wages system upon a fair basis of mutual advantage. Yet it is just here that the facts belie the theory. In order for economic science to produce results, it must have the data and agents it assumes; and of these assumptions the most important is that the labour in the case shall be inspired by, and work upon, economic principles. Is it? Does it? Hear the evidence.

Recently orders for a number of large steamships were placed out of this country by British shipowners. This was no exceptional case, although the size of the particular transaction arrested public attention. More than a year before it had been pointed out publicly that the late delivery of British-built ships was driving construction out of the country. The workmen were making too much money, and consequently would not work full time. This has gone on until, as a *Times* correspondent puts it:

"There is another condition which operates against quick delivery; the scale of wages to the men employed is, as is well known, very much higher than that of even two years ago, and the men in many instances—notably that of riveters—earn as much now in four days as they used to earn in five and a half days. If they worked the full week, they would benefit themselves, their employers, and owners. Unfortunately for all parties, this does not suit the men. On the contrary, the majority of such men refuse to work more than the four days; the spirit of thrift or economy being, except in isolated cases, unknown, or, if known, despised by them. Overtime is tabooed by the various unions.

"I have little doubt that the chief reason for the placing of orders with French builders is the much greater reliance that can be put upon date of delivery, as the French workmen welcome busy times as enabling them to add to their savings, whereas the British workmen welcome them as giving them the means to spend money on personal entertainment, to gratify which they utilise the time when they could be earning further wages for the good of themselves, their families, and the community in general."

Now, here is an uneconomical proceeding, which upsets all argument that good wages produce good work. The effect is very human, of course; but the fact amounts to a total failure of the wages system to evolve an "economic" workman. From the thrift point of view, therefore, the wage system is often disappointing. Also, the worker who takes no care for his own morrow, and will not appropriate for himself a reasonable share of the good that is offered to him, is an unprofitable servant of the commonwealth.

The riveter who wantonly "holds up" a badly-needed cargo ship or tank steamer, the collier who banks less coal than he might without distressing himself, the bricklayer who will only lay in a day half the number of bricks that he knows is a fair day's work—all are decreasing the output from the value of which their own wages are derived, and increasing the cost of living to the whole community, including themselves. So the cry for yet higher rates of wages is again raised; so the cost of commodities ever rises higher; so discontent is confirmed in the hearts of employes and employer. Thus the mischief revolves in a vicious circle, ever returning to the same point.

The *Times* correspondent mentions overtime as being "tabooed by the various unions." There it is possible to agree with them. Systematic overtime on a home job is an outrage. Where men work away from home, as in the construction of works or the installation of plant, it is a good thing—keeping them out of mischief. Otherwise, except for emergencies, I for one am strongly in favour of reasonable working time, whereby the man may have leisure without over-weariness to cultivate his mind and perfect his citizenship. What the working man (to use a very question-begging classification) chiefly needs is a keener, deeper sense of responsibility for himself and his belongings. He should feel independent of patronage and traditional benevolences, which can never be so long as he has not something, however small, over at the week-end. Regret has often been expressed at the indifference and ingratitude of men and women of this class towards good employers. Perhaps, if we were better students of human nature, and, especially, more expert in the difficult art of seeing ourselves in others, we should rather watch the signs of insubordination, and try to ascertain where the burden galls, so that men so readily throw it down.

Some explain the lack of interest on the part of workmen in the fruit of their labour by the subdivision of modern manufacturing methods, and the development of machine tools, by which a man never makes a complete thing, but only a part of a thing, and most often merely has to watch a machine doing that. It appears to me that this explanation does not go very far, because the greater part of the world's work that has to be done has never been skilled craftsmanship. Others argue that the missing sense would be supplied if all hand-workers were more "educated." It depends upon the education.

The Problem of Education.

It has, I fear, been ignored by our statesmen that education can and should be physical and social as well as being intellectual. Far and away the greater portion of the necessary work of the world is that which demands physical address, bodily strength, manual dexterity, quick perception in practical matters—all of which may be brilliantly shown by men who can hardly read or write, and for none of which is a purely intellectual education a necessary or even a fit preparation. It is useless to blink these facts, or to make believe that all the school-teaching in the world will suffice to make a good gasholder erector, a first-rate retort-setter, or a competent gas-fitter. Do not let us deceive ourselves. There is plenty of unclerical work to be done with human hands and brains, and it will command more money than cheap scholastic attainments. It is not necessary to despise the one for the sake of the other order of human accomplishment; they will find their level in the great scheme of things. Even in the United States, where schooling is more eagerly sought after than anywhere else, a stout fellow can sometimes earn more at piling pig iron than a University degree will command.

Educate our working classes by all means, but not in only one way. The true reason for the failure of our elementary education system, which costs such enormous sums, is to be found in its lack of correspondence with the social environment in which it functions. It is the same with much so-called technical instruction. Teach and train mechanics in all trades; but do not forget that good workmen and citizens cannot be made by technical knowledge alone. They also want to undergo discipline such as that of voluntary national service, to read good books, to play manly games, to learn the practice of local self-government, to have their eyes opened to art and their souls to music. I am glad to find myself in agreement here with a Labour member, Mr. J. R. Clynes, who recently in a newspaper article recommended workmen to "give to good book-reading during the coming years all the precious time they waste on staring at the flashy head-lines and absorbing the worthless parade of the newspaper rubbish which makes up much of the news of the day." Development of character by firmer discipline from childhood to manhood and womanhood is, in my opinion, one of the urgent needs of to-day in all classes of society.

Meanwhile, I hold that a beginning can be made in the creation, in working men of all kinds, of a real interest in the success of their employments, such as they have never hitherto had unless they worked on their own account. This is the industrial position as it has been handed down to us: If a man sets up in business for himself, he takes and stands to everything, profit and loss. If he works just as hard

and devotedly for another, he is supposed to be paid by his wage, and there an end. The rupture of the bond of interest in the results is so absolute, while the unity of the moral obligation is so insisted upon, that the condition thus reviewed appears ludicrously inconsistent. Is it right to regard the wage as an ascertained and liquidated compensation for the service rendered? Such a position might have been taken up fifty years ago, and defended with all the force of what has come to be recognised as Manchester economics; but its symmetry has been destroyed of late years by otherwise inspired legislation. I fully recognise that a great breach has been effected in all familiar industrial contentions of the kind by the Workmen's Compensation and the Insurance Acts. It is too soon to value the economic bearings of the latter statute; but it certainly demolishes the proposition that the employers' responsibility ends with the payment of wages.

I consider that this is not all, and that an enormous advance can be made towards the solution of the industrial problem by giving the workers an interest in the fruit of their labours, whether of head or hand, by the way of co-partnership. This is not properly an essay on the system so named; and I must not detain you while I expound my views upon its advantages. I have given the best pledge of my sincerity in this regard, by my administrative policy in the cases of gas undertakings with which I am connected. I am glad to know that my faith in the principle (for the application of which to gas companies we have again to thank Sir George Livesey) is also held by so many other directors of gas companies that at the end of last year the *Co-Partnership Journal* could publish a list of thirty-five undertakings, employing £49,190,980 of capital, as having adopted co-partnership systems. There is one municipal undertaking known to me, Stafford, which has adopted the principle—I presume under the promptings of our esteemed colleague, Mr. J. Ferguson Bell—and I do not see why there should not be more. We must, however, be patient. The heaven is bound to work, if it is good.

We must not expect everybody to see eye-to-eye with us co-partners, and especially is it imperative to allow time for the principle to show its full results in respect of those who are admitted to its operation. There must, of course, be selection. The ancient proverb about "silk purses" and "sows' ears" is warranty for that; since an unsatisfactory workman cannot be expected to make a good co-partner. After that, there will be some who will fail to realise the true purpose of the plan, but will treat the bonus as so much extra wages. This improvidence is contrary to the intention of any scheme of the kind, and must be repressed. Another matter for Time to cure is the opposition of socialists and trade unionists of a certain type, whose position is sometimes actively obstructive when they happen to have influence with elective bodies. I have hopes that even these opponents will come round, if we are careful to approach them by the points where we are agreed. Perhaps these will be found more numerous than either side suspects.

The President then referred to the present greatly and unduly increased cost of coal, and the grave difficulty with which the gas industry is consequently faced in its endeavour to keep down the price of gas to the public, and, with a glance of satisfaction at the steady progress and present vitality of the Institution of Gas Engineers, concluded with

A Glance at the Future.

What, he asked, of the future of our industry? The thought of the future, added Sir Corbet, has been at the back of all my reflections; for, as Thomas Carlyle has said, "We go forth to meet our Future; and lo! it comes streaming-up from behind over our heads." Truer words have never been spoken; for where there is continuity of life, past and future are united rather than severed by the fleeting moment of present time. We are what we are, because of what we have been. Yet the actual moment, while it slips away from our grasp, is all-important, because it is our opportunity for action. It is our duty to work for the future, in the light of the past; and time will prove whether we have done well or ill. There is no falseness saying than the pessimistic cry, "It will be all one a hundred years hence!" We are here to-day because of the good work of the pioneers of a century ago.

I believe that, whatever the future may hold hidden from us, this industry of gas manufacture and supply will keep to the sound lines we know. It will grow; but it is not very likely to change its principles. We know how solidly it is based upon the bedrock of true economy of the raw material; and we mean to improve every opportunity

for economising capital and labour also. To cheapen gas, and serve the public well, is our ruling policy, to which we shall adhere. While we stick to this rule, and cultivate our business in a spirit of enterprise and frugality, all the consequential benefits talked about by the prophets of hygiene and simplified social service will follow naturally. We shall not dream about "bulk" systems of providing British towns with smokeless, labourless fuel, but do it—making more gas every year; putting out more coal fires; and being more and more generally useful to the community at large. There is little risk of the money sunk in our undertakings becoming unremunerative within any stretch of futurity we need take heed for, because it is barely conceivable that our services can be superseded.

Finishing this discursive address, I can say that we keep the Jubilee of our Institution under conditions which furnish cause for some pride and much thankfulness; and, in the light of our experience, the younger men among us may look forward to the centenary with hope and confidence.

"THE TIMES" CRYSTAL PALACE FUND.

A PROMISING scheme has been devised by the Anglo-German Exhibition Company (Ltd.) for adding to the *Times* Fund in aid of the Mansion House effort. The company proposes to offer for sale to the public season tickets up to the number of 250,000, giving admission to the Palace and grounds—where the Anglo-German Exhibition is now in progress—throughout the season until October 30 next.

The tickets will be sold at 5s. each; and of each 5s. received 4s. will be handed over by the company to the *Times* Crystal Palace Fund, after deducting the small expense incidental to the issue of the tickets. Upon each thousand tickets sold there would be an approximate yield for the fund of £200. The ticket will be described as the Lord Mayor's Fund Season Ticket, and will be obtainable from Messrs. Tinlings, 13 Finsbury Circus, E.C., who are acting as hon. secretaries for this project.

It is intended by the company to ask the Lord Mayors and Mayors of every city and town in the kingdom to assist the Lord Mayor of London, through the *Times* Fund, by offering to be responsible for the sale of a certain number of season tickets, or by appointing local committees for that purpose.—*The Times*.

THE BUILDING UNIT IN THE MIDDLE AGES.

At a meeting of the Royal Archaeological Institute held in the apartments of the Society of Antiquaries, Burlington House, W., Mr. F. Bligh Bond, F.R.I.B.A., read a paper with the above title.

In the course of the past year Mr. Bligh Bond has been collating the results of his excavation at Glastonbury. In the course of that work he studied and compared many of the principal dimensions, and he casually noticed the occurrence of certain figures of a peculiar order. A friend working independently also noted the recurrence of the same proportions—namely, multiples of 37 feet. A further study of this series of dimensions revealed the fact that some of them appeared to be consecutive on the plan. This led to the suggestion that a system of commensurate squares or rectangles, if laid down upon the general plan, might show some evidence of design on these lines.

This system of commensurate squares is, as is well known, one of the two rival systems used by the mediæval builders. These are mentioned by Cesariano (the sixteenth-century Italian editor of "Vitruvius") under the respective names of a *pariquadrato* and a *trigono*—indicating respectively a square and a triangular structure. What appeared novel to Mr. Bond about the new quest was the following: (1) The applicability of a general system of geometric units to a whole group of buildings, and not merely to the dimensions of a church or single building. (2) The choice of so remarkable a unit as 37, or any series of multiples or fractions thereof.

A carefully plotted network of squares of 37 feet laid over the Glastonbury plan plainly showed that a general coincidence existed. The application of a similar test to plans of other mediæval religious buildings showed these critical dimensions to be quite general, especially in England. In hardly any are they altogether absent. The application to the Glastonbury plan of seven other systems of arbitrary square units showed an average of less than half the number of coincidences. The results, according to

Mr. Bligh Bond, furnish reasonable ground for the hypothesis of intention on the part of the builders in the incorporation of this curious number, or system of numbers, in the leading dimensions of their plans.

The first unit taken was, as already stated, 37 feet. This, whilst it gave remarkable results, appeared either too large or too small to satisfy the whole requirements of the situation. Further experiment revealed that a fundamental unit of $3\frac{1}{2}$ feet, or 12 feet 4 inches, reconciled most of the features at all notable in the plans tested. This stated in inches for uniformity's sake is the 148-inch unit. The larger unit of constant occurrence consists of six of these = 74 feet = 888 inches. The preference found for this dimension in the plans of the bigger churches, notably in the widths of the naves (as at Glastonbury), and the various leading interior lengths, was extraordinary. The total length of the Glastonbury buildings externally works out at 592 feet, or eight consecutive squares of 74 feet. At Lindisfarne the width of the transepts, according to published plans, is 74 feet, and the whole length is 148 feet. The plan of Canterbury shows the width of the nave to be 74 feet, and the external width of the apse of St. Thomas 74 feet also; while the total length is 444 feet, or six consecutive squares of 74 feet. Romsey nave appears to be just 74 feet wide. The interior width of narthex and nave at Vézelay is 74 feet. At Fontenay the length of crossing and presbytery to outside of east wall is 74 feet, which is also the width overall of the nave. At Hereford Cathedral it is the width inside the aisle walls; and at Furness and Fountains the width of nave and aisles, including one wall.*

The dimension 37 feet—which is a half of 74—is also much in evidence, as at Lincoln, where it is the clear width of nave between vaulting shafts, and at Hereford, where it is the width of the transept avenue, including the west wall. The larger multiples of 37 are exceedingly abundant, notably the 111, 222, and 333 feet.

In a preliminary search for the possible meaning of these numbers, Mr. Bond said he soon found that they possessed among the ancients a symbolical or mystical significance, founded in part upon certain unique arithmetical properties they possess, but more perhaps, upon their association with old astronomical measurements and cycles having reference to the sun. Thus they were employed by the Greeks and by the Egyptians.

Abundant evidence existed for linking the masonic guilds of the fifteenth and sixteenth centuries with similar bodies of remote antiquity. The great continental schools of operative masons inherited, through the Lombardic builders of Comacine origin, a remnant of the operative science of the Roman colleges, and probably in a more complete degree their leading theoretical principles and canons. There was another school of masons who derived their traditions more from Græco-Egyptian or Alexandrine sources than from Roman. These were supposed to have been organised under Pythagoras; and it is notable that our native masonic charters, as well as remarks by ancient writers, point to these islands as the home of this particular cult, whose traditions would be peculiarly rich in symbology of a cosmic or mystical type.

Unfortunately but little is said by mediæval writers as to the masonic secrets or canons of building. Cesariano, however, writing in 1521 on Vitruvius, tells us quite sufficient to make it clear that some mystical principles were habitually employed in mediæval times, and that these were veiled so that they would not be apparent to the student of externals. The principal secret was the incorporation of the vesica or rhombus as the mystical or hidden complement of the Cross, which was always the exoteric symbol of the Church. The Cross is always the masculine symbol, the vesica the feminine. Hence the vesica may be looked for in the proportions of any cruciform building. It exists at Milan—the buildings discussed by Cesarino—not only in the sectional elevation, but also in the ground plan. Numerals of the 37 series have been used here too. There is, indeed, a solid geometrical reason, as well as many mystical ones, for the preference of this series, for they represent one of the nearest approximations to an integral scale for the construction of the vesica or rhombus, the chosen *figura mystica* of the temple builders.

In a plan of the Lady chapel of Glastonbury, reconstructed to its original dimensions, there is, Mr. Bligh

* All by scale from published plans.

Bond pointed out in conclusion, a double rhombus. The outer one exactly coincides with the lines of the external parallelogram at the plinth level. The lesser one, including the walls and lateral buttresses only, scales as nearly as possible 37 feet by 64 feet, and its area is thus 1,184, which is, oddly enough, the date of the building and also one-half of 2,368, which is the most important canonical number of this series.

Mr. Bligh Bond summed up his closely reasoned address by stating that the principal symbolic or canonical numbers of the 37 series, the presence of which, in an intentional form, he suspected in mediæval buildings, were:—

74 feet = Six units of 148"

123 feet 4 inches = Ten units of 148"

197 feet 4 inches = Sixteen units of 148".

EXCAVATIONS AT THE PRE-DYNASTIC CEMETERY OF TARKHAN.

PROFESSOR FLINDERS PETRIE has been giving a course of lectures at University College, Gower Street, dealing with the discoveries made during his winter's work at Tarkhan, the large cemetery of what is now known to have been the capital of Egypt before the founding of Memphis (B.C. 5500). Operations on the site were begun last year, when the digging threw a new light on the domestic architecture of the time, many of the coffins having been made from house timbers, which, together with certain forms found to have survived in a later period in stone, gave the clue to the construction of the dwelling-houses themselves. (*The Architect*, October 11, 1912.)

This year perhaps the most interesting result from the architectural point of view is the discovery of the origin and the evolution of the mastaba, the prototype of which is found in these early times, and developed very rapidly.

The cemetery, which covers a wide valley, extends further than excavations are possible, owing to irrigation, but close upon 800 burials have been brought to light, and these must have been covered up almost immediately by the sand, and are, consequently, in wonderful preservation.

In a sandbank rising out of the mud a line of graves was discovered, some of which date from two reigns before Mena (the first dynastic king, 5500 B.C.).

From the wonderful care that has been taken, first, to photograph each grave exactly as it was found before disturbing any of the remains, and, next, to measure the bones



BLACK GRANITE HEAD. MEMPHIS. 1300 B.C. (?)

exactly as they lay in position, it has been possible to draw very accurate conclusions as to the nature and history of the people.

The graves were dated by the pottery and the stone vases, which were carefully compared with other early examples found in the cemetery of the first dynasty at Turah, opposite Memphis, and found to be of earlier date.

The opening up of Tarkhan, therefore, throws a new light

on the early civilisation of Egypt, showing the transition between that of the native inhabitants and the new ideas brought in by invaders, which proved to be the culture of the dynastic races such as we know it.



BRONZE SWORD, SPEAR, KNIFE AND HOE, ABOUT 1400-1000 B.C.

From the bones it has been proved that while the women were of the same type as the majority of the men, about one-tenth of the male population was of a distinctly different type, and these were evidently the invading men of the dynastic race.

It was also found that there was an excess of female burials. Probably this was not so much due to the killing off of the men as to the likelihood of the invaders having brought in two or three women each from the neighbouring districts which they had conquered.

As recently as the year 1876 the catalogue of the College of Surgeons classified all the inhabitants of Egypt over a period of 8,000 years under two headings only—ancient and modern—whereas now it is possible to classify them within a period of from five hundred to a hundred years, and to discriminate and to locate at least to within an area of 500 miles.

According to the bodies found the invaders were about two inches shorter than the pre-dynastic race, but the effect of the smaller race which came in was soon lost, and this intruding type left no lasting impression.

It has been found that after five centuries the type will go back to the original as if no change had taken place. The average height of the pre-historic Egyptian was, however, 6 feet 9½ inches. The burials at Tarkhan showed the inhabitants of the city to have been an exceedingly well-to-do class, and even the poorer among them to have been on a far higher level than to-day. To the invaders, however, is due all culture and art, the native population probably remaining as the lower classes, and such elementary arts as they possessed quickly falling into disuse when brought into contact with the higher civilisation, the art of glazing excepted, which dates back to the native inhabitants. It was in some surface tombs on the sandbank that the origin of the mastaba of later development can be traced.

The grave was covered with a low mound of earth. When this was removed the body was found to be buried in a square pit, invariably in a contracted position, and sometimes enclosed in a coffin; but in the majority of cases the pit was merely lined with loose planks, house timbers, or bricks, and covered with papyrus mats measuring 2½ to 3 feet wide by 5 feet long, similar to the ordinary sleeping mat.

It is remarkable how little sand had penetrated through

this covering in graves where it had been used. Inside the pit with the body were found offerings in jars of alabaster, limestone or pottery, and slate palettes, some with the malachite still on them with which the eyes were painted. Packets of specular iron for blackening the eyes, white galena and malachite were found beside the palettes, with the little grinding pebble. In some cases the hands still clasped the alabaster pot containing prepared malachite which was probably used as a disinfectant; also its green colour round the eyes may have prevented the glare from the sun.

Outside the pit, but not over it, was an offering-chamber with an encircling wall and two slits or openings like doors into the grave for the free passage of the Ka or double.

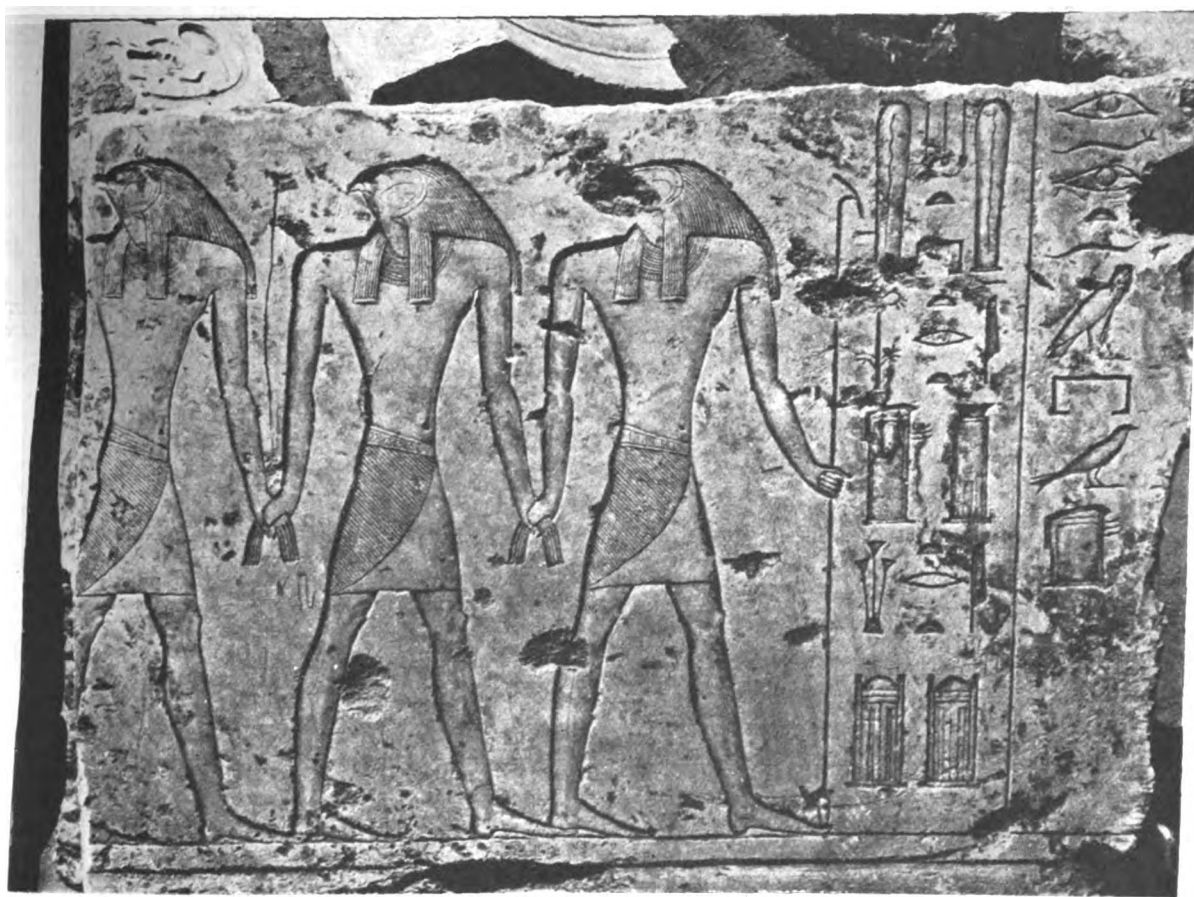
In some cases outside the offering-chamber stacks of pottery of coarse make were found. These grey pots of inferior workmanship were evidently only made for funeral offerings, and when emptied of their contents stacked outside. The custom was peculiar to the invaders, and is not found in pre-historic times.

This type of burial is obviously the beginning of the mastaba, which is next seen in a developed form in the

Flint weapons, together with the largest axe of copper and a large knife of copper, were among the finds. This is the only rich tomb that was undisturbed, for all the others have been plundered, but the body had disintegrated owing to damp and decay.

Some green glazed pots were found, showing the high development of the industries in these early times. The bead necklaces of garnet and carnelian were of considerable value, proving that the population was decidedly well-to-do. Only a very few flint knives were found, six only out of 800 graves showing that in the time of Mena copper was more in use than flint.

At Riggah an interesting stele had been used to block the entrance to a grave of much later date (of the twenty-sixth dynasty). The stone has in the central panel a representation of the deceased and his wife. From the carving it might be early third or fourth dynasty work, but the fact that the names are inscribed upon it, together with the introduction of the servants of the deceased, places it nearer to the eleventh dynasty. The huntsmen and outdoor servants are represented with their nets for catching birds and other hunting weapons.



SHRINES OF SACRED SERPENTS. MEMPHIS. 3400 B.C.

Flat-topped "Shrines of the South" where flat roofs and reed building are used. Dome-topped "Shrines of the North" where brick domes and brick-panelled building was used.

middle of the first dynasty, and fully described in the annual report appearing this month.

Two fine examples were found on the top of the hill, measuring over 100 feet in length. The panel work was most carefully spaced out, bricks 10 inches long by 5 inches wide and 3 inches thick being used for the main construction, and smaller bricks for the panelling.

The graves of dependents were grouped around the chief, and in one case a large coffin blocked the gangway of the mastaba. When opened, it was found to contain the bones of a duck, which had evidently been a pet. Another long block covered the burial of three donkeys. The head of an ass had been found in a miscellaneous burial of the first dynasty, but this is the first time that whole bodies have been found buried.

Amongst other things there were little models of granary towers made of mud, and an alabaster offering-table. The little towers are about 12 inches high, and are to be seen at the exhibition now being held at University College. They show two doors, one high up, from which to take the corn when the tower is full, and one quite low down, for use when the store has diminished.

Another interesting piece of work shows three of the four hawk-headed sons of Horus. The stone was found in the ruins of the State Temple at Memphis, having been brought from the cemetery of Sakkara, and used as building material in a later time. The close ribbed treatment of the drapery and hair are characteristic of the twelfth dynasty. The shrines on the right of the figures are interesting as showing the flat treatment of the roofs of the south, where reed and mud building was used, and the dome-topped shrines of the north delta where brick domes and brick panelling was used in the buildings.

Two of the sceptres of the god Ptah were found buried in the coffin of a high priest. In one case the staff is plain, but in the second it is waved from top to bottom. This is the only one known of its kind, but there is another with the straight staff.

Among the finds belonging to a later period was some wonderfully interesting stucco work—two fine heads and some fragments of ornament in very high relief, all worked by hand, are to be seen at the exhibition. They belong to the fourth and fifth century A.D. The core of the building was brick faced with the stucco.

The excellence of the workmanship of this "free" hand decoration (for it is not moulded) proves that there was probably a large and efficient school in Egypt of skilled workmen at this time.

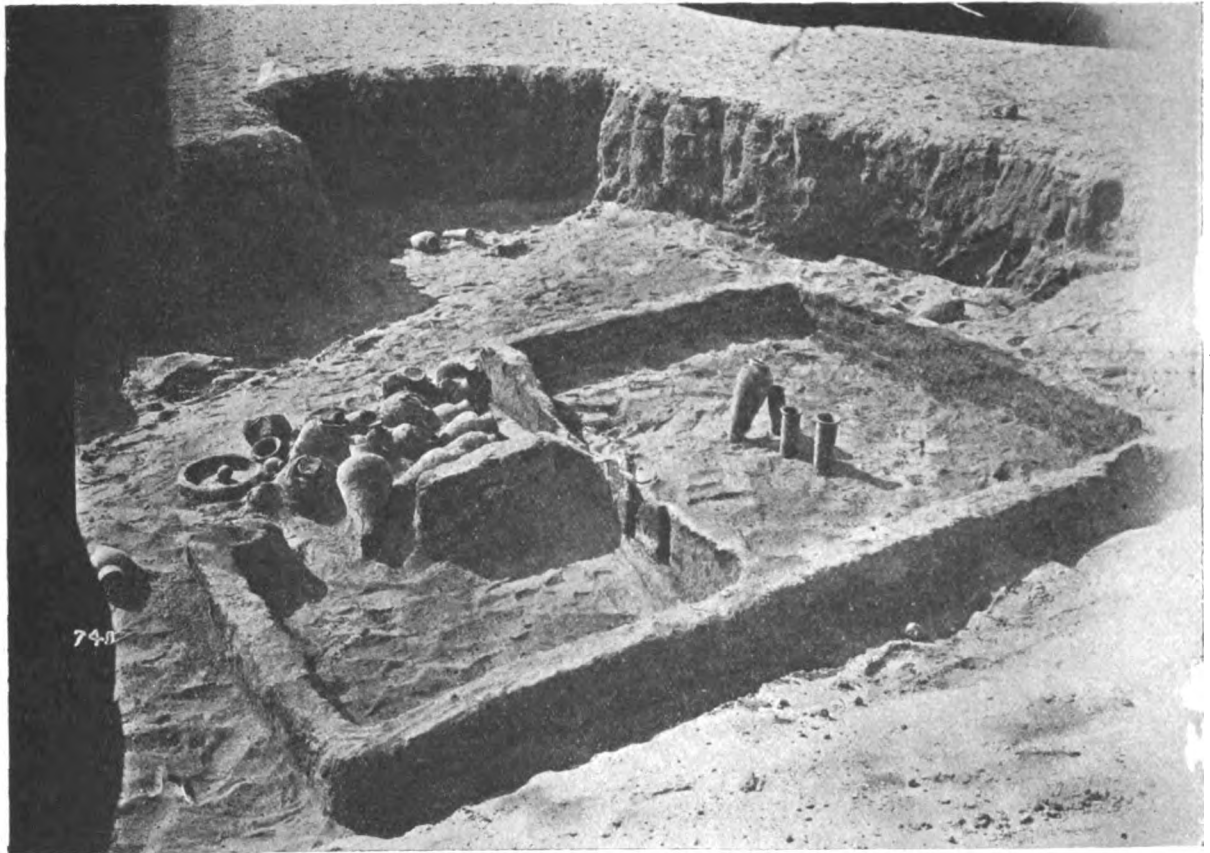
The church of St. Pietro in Monte, on Lake Lecco, is treated in the same manner, owing to the difficulty of working the hard granite and serpentine which is found in those parts. The entire decoration is in stucco. The church dates from the year 800 A.D.

This church appears to be very little known, and was mentioned by Professor Petrie to prove that that form of decoration was probably very general where the building material was unyielding, and that it had probably survived from these later Egyptian times.

An unusual shaped capital was found on the same site as the stucco heads, consisting of tall and broad palm leaves, and having a groove cut out in the centre, showing that there had probably been a screen let into the groove similar to the

Jeypore," shows very delicate work and good differentiation in regard to values of shades and shadows. "Cheyne Row, Chelsea," is a highly pictorial sketch, though not architecturally attractive.

But we will select some of the work which bears away the palm. "Christ Church, Oxford" (18) and "Interior of St. Maclou, Rouen" (70), convey quite the cathedral gloom and mystery which form such an impressive feature of many places of worship. "A Cottage at West Hendred" is a little gem of art, and "The Great Door, Rouen Cathedral" (34), and "Holy Trinity Church, Stratford-on-Avon" (74 and 80), are pictured poems. In another way "Hammersmith" and "East India Docks" are notable. Despite King Lear's pronouncement, "Nothing can come of nothing," we find that Mr. Menpes can produce rhythmical studies, such as the two first mentioned, even in the absence of real subject-matter. "Windmill near Barnet," "Goring," and "Old Gothic Doorway,



GRAVES AT TARKHAN, 5500 B.C.

Square grave originally filled up and with retaining wall. Pottery found in grave below.

Stack of pottery left behind after making offerings. Place for offering with two slits for offering.

chancel screens in some of the Coptic churches. The capital, which is very beautiful and of very fine proportion, is to be seen at University College. The exhibition will remain open till July 26.

MR. MORTIMER MENPES' DRY-POINTS AT THE DOWDESWELL GALLERIES.

MESSRS. DOWDESWELL have reverted to their customary presentation of first-rate work in displaying on their walls this collection of 144 engravings by Mr. Mortimer Menpes. Without expressing our approval of all, we can yet confidently say that there are very few indeed for which we fail to record our grateful appreciation. Some are super-excellent; most are in the category of absolutely good work, such as, for example, "Victoria Embankment," "A Narrow Canal, Venice" (5), "A Waterside Tea-house, China," "On the Great Canal, Osaka," "Court-yard, Toledo" (22), "Rotterdam" (60), "An Old Bridge, Cashmere" (64), "Plum Blossom, Japan," and "A By-canal, Shanghai." Before going further, those just named will serve to show the cosmopolitan range of Mr. Menpes' work.

"Inner Quadrangle of Magdalen College, Oxford," has a fine total effect, but the oriel window would benefit by massed treatment of line, and the sky-hatching is unsympathetic; whilst in No. 4 ("At Rotterdam") the scratching in the sky is unmeaning. "A Street Scene,

Rouen," are certainly three of the best works shown. "Harvard House, Stratford-on-Avon," is the class of work which a good architectural draughtsman would produce—and this is high praise. "Bronze-workers, Japan," is quite Dutch in effect. In portraiture Mr. Menpes does not show much; "An Andalusian Maid" is a spirited sketch in profile of a three-quarter length model, and three head studies of J. M. Whistler are very characteristic. "Breton Child Asleep" is very disappointing work, and shows a lack of sense of "scale" which is comical—the *petit choux* looks quite Brobdignagian; and in "A Bridge at Srinagar" the horses and men look gigantically out of scale also.

"Setting the Palette" is a silly little sketch of two naked babies; and two other silly subjects are "Nelson's Monument" and "Duke of York's Steps," the latter particularly so, for what interest can there possibly be in such a subject? And though the Landseer lions and the panelled pedestal of Nelson's monument are the most attractive features, yet for pictorial purposes it is an error so to mutilate the column as in these two studies.

Here and there, but not often, the artist evinces a certain harshness of delineation, such as in "The Grey River," "Amsterdam" (114), and some others. And again in some there is a peculiar delicacy of touch that here reminds us of Harding, there of Railton or Pennell; in "Musée de Cluny" and "The Tower, Amsterdam"

(110). Mr. Menpes displays a combined softness and esprit peculiarly effective. But we might continue seriatim as regards meritorious criticism until we had exhausted the far greater number of the 105 sketches to which we have not called specific attention. It is an exhibition to be visited and revisited.

THE WORK OF MUNICIPAL ENGINEERS AND SURVEYORS.*

MEMBERS of our profession are necessarily very busy members of the community, and are constantly working, in the office and out, for the welfare of the particular district of which they have charge, and incidentally, for the benefit of the whole community. Sometimes our work is not fully appreciated by the ratepayers; but, on the other hand, there are few works and improvements completed that do not prove that the criticisms passed during the preliminary stages are wrong. At the same time, criticisms, however unpleasant, are not unwholesome, and it behoves the engineer, especially in the municipal line, to see and hear what is being said about his work by the person commonly termed "the man in the street," to enable him to gauge the wants of the ratepayer.

The requirements of the times are, no doubt, very exacting, and if a curve could be plotted showing the requirements of the public during, say, the last twenty-five years, it would show a very marked upward tendency, and the curve would be gradually getting steeper year after year.

Perhaps the standards as applied to (1) road making, (2) housing, (3) sewage disposal have been raised higher than the other branches of the work of a municipal engineer, and it is to these subjects that I wish particularly to refer.

As regards road making, which is perhaps the greatest source of complaint, there can be no doubt but that there is considerable room for improvement if we are to cope successfully with the fearful dust caused by quick-moving and heavy traffic. Various methods of treating the surface of roads have been tried, but all are more or less merely palliatives, and have no lasting benefit.

In my opinion, the remedy will eventually be found in some improved method of construction. What it will be is still unknown if consideration is to be given to the financial side of the problem. Most engineers would undertake to make a good, strong, substantial road, with a smooth, even surface, a fairly long life, and nearly dustless as regards the wearing of the material if cost had not to be considered.

Each district must be considered from its own standpoint as to suitable local stone, cost of imported stone, and essentially the class of traffic using the road. What I would like to say is: do not use dirty flints if you can possibly avoid it.

The Road Board are willing to help any surveyor who will take the trouble and prevail upon his Council to allow him to carry out experiments in road making, including both foundation and coating similar to those experiments carried out under the supervision of Mr. H. P. Maybury, M.Inst.C.E., the Kent County Surveyor, at Sidcup.

As to housing: this is also a source of much criticism, but unfortunately the criticisms generally are against any money, or as little as possible, being spent in this direction, principally because the ratepayer cannot see how he gets any return for the expenditure. It is difficult to argue, even with one's self, that the purchasing of worn-out insanitary property, at often an enhanced value, for the sole purpose of effecting an improvement in the housing conditions of someone else, and, incidentally, the widening of a street one never uses, is going to do much good. The engineer, however, knows that slum property has a very bad effect on the death-rate, and that the lower the death-rate is reduced, the greater the longevity of life, and therefore the greater probability of good being done to the general benefit of the community by increasing the possible working life of many of its units; for, after all, it is the work one does in whatever sphere he may be placed that materially helps the progress of the world.

The recent legislation regarding the housing of the poor has made it easier for local authorities to acquire property for the purpose of effecting housing improvements at a price more nearly approaching its true value; and I am one of those, either in the capacity of ratepayer or engineer, that think every opportunity should be grasped by local authorities

ties to wipe out slums, provide good substantial dwellings for the working classes at reasonable rents, and provide wide streets so as to give as much air as possible to those people who are perforce obliged to live their lives in towns.

The great drawback to providing cheap, well-built small cottages is no doubt the cost of building and the inability of the builder to make what he considers a fair return on his outlay. The recent advance in prices of materials and labour indicates a continuance of this condition, and it therefore seems that the provision of workmen's cottages must necessarily be left in the hands of local authorities or co-operative societies.

When an authority clears any area for either a street improvement or housing improvement, it is well known that the Local Government Board compels the authority to provide a certain number of cottages for the dispossessed artisans, which must be let at a figure approximately the same as previously paid by the tenant on the area to be cleared, and very little consideration is given to the number of empty houses there may be in the town. This policy of the Local Government Board seems to be very arbitrary and unfair to the view of the ratepayer outside the area being dealt with, but there are two sides to the question. The period usually allowed for repayment of sinking fund is sixty years in the case of buildings. To provide for this repayment of capital out of the rent inflates the rent beyond the pocket of the people the houses are built for. The Local Government Board meet this argument by saying the rent must be lowered to suit the tenant, and the loss on building, if any, must be borne by the particular improvement carried out. There is also the fact that when the sinking fund has been repaid, the financial loss on the houses, if any, might, and in all probability would, become a profit, as the rent in the first instance is always fixed on the whole cost of management, upkeep, repairs, interest, and sinking fund. The repairs being properly kept up, it is fairly reasonable to presume the property, at the end of the period of the loan, would be in a good condition, and have many years of life left.

As to sewage disposal, we all know that this subject is probably the most important one in all towns, be they large or small, and is, therefore, a very necessary problem to solve. Still, it is curious that it is, perhaps, subject to more criticisms than any other municipal engineer's problem. The general public, the council, and sometimes the engineer have all something to say against some particular scheme. No one seems to see the necessity of purifying sewage, though everybody would be up in arms if it were left to pollute our streams and countryside to the detriment of the general health.

The criticisms take the following lines:—It is too costly, too elaborate, too near someone's dwelling, the wrong system, &c., &c. As a result of the remarks of the critics, the engineer decides on the most effective system, having regard to cost, position, and likelihood of nuisance, and does his best.

Engineers of the present day are in a much better position than ever before. The Royal Sewage Commission have, during the last fourteen years, gathered together a wonderful amount of matter from engineers who have had the opportunity of carrying out experiments; and they themselves, through their officers, have carried out some very useful experiments at various towns, and under varying conditions, throughout the country. As a result, we have their fifth report, and, more recently their eighth report—two very useful volumes indeed to the sewage engineer.

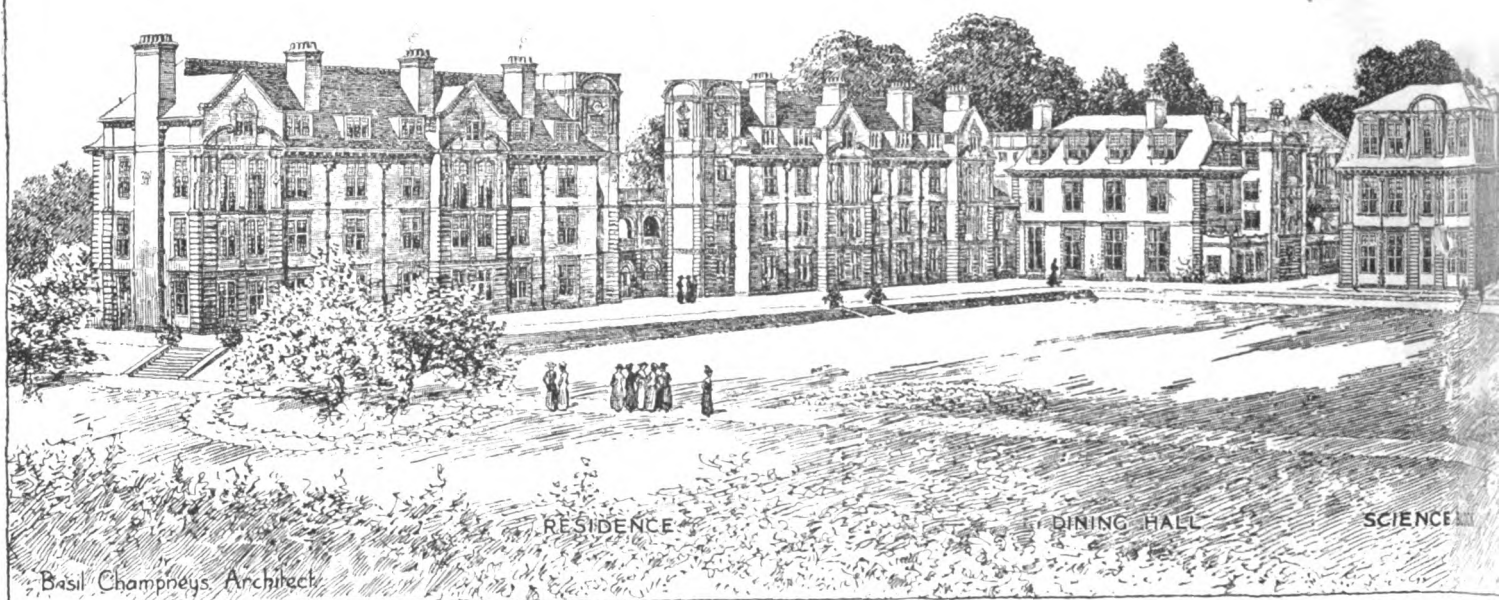
The information contained in the Royal Commission's report has been very useful to myself. Exeter is the home of the septic tank; and although the system is not exactly what it was first made out to be, the country owes a great debt to my predecessor, Mr. Donald Cameron, for his patient industry and the hard work involved in carrying out his first experiments. The Exeter Works were the first works constructed on a large scale, and I daresay the Local Government Board were not so strict at the time that powers to borrow were granted as they are at the present time; but, as a result of the recommendations contained in the fifth and eighth reports, my council are now considering the advisability of bringing their works up to date, and to a better standard of efficiency.

These remarks could be extended in a degree to water-works, tramways, sewers, and all other municipal engineering works, but I will close my address by saying that all engineers, in whatever work they may be engaged upon, should aim at efficiency, having regard to the cost, but always at efficiency.

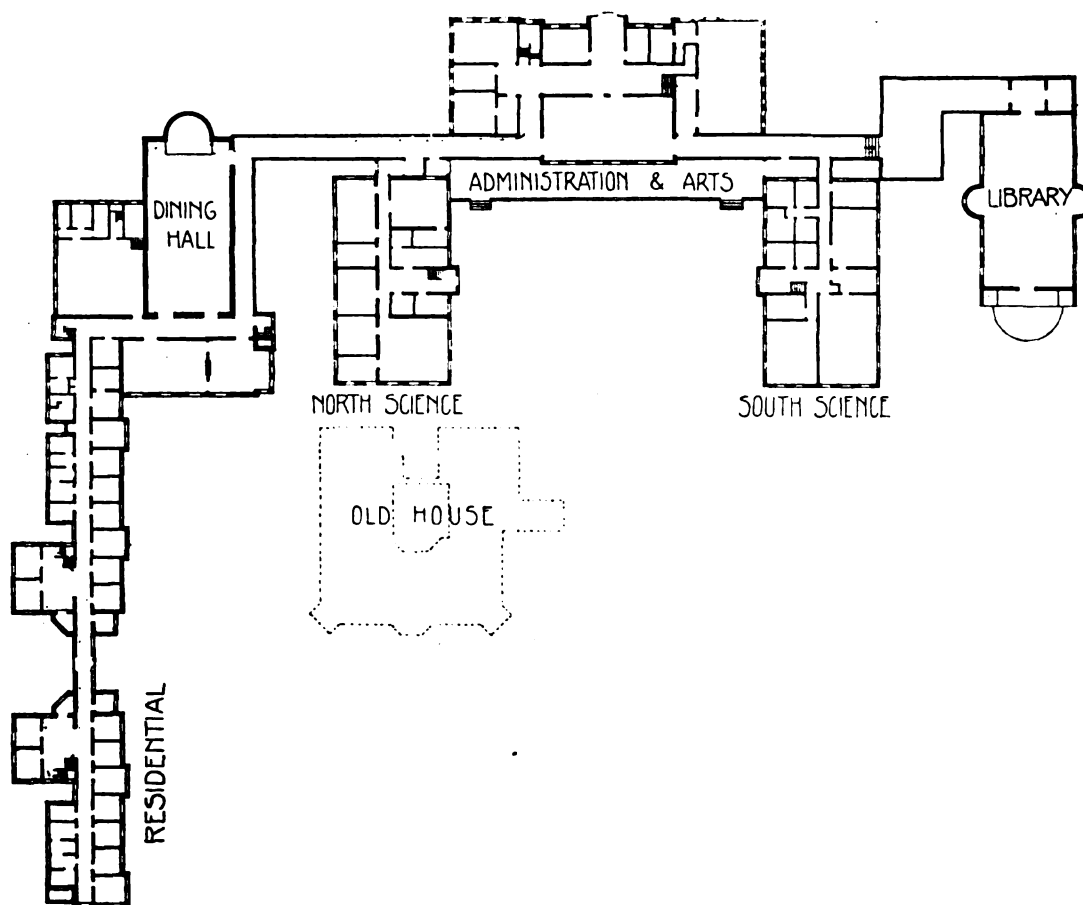
* Abstract of Presidential Address by T. Moulding, M.Inst.C.E., city engineer and surveyor, Exeter, read at the Royal Sanitary Institute Congress, Exeter, to the Section of Engineers and Surveyors to County and other Sanitary Authorities.

BEDFORD COLLEGE FOR WOMEN

GENERAL VIEW FROM COLLEGE GROUNDS



A GENERAL VIEW OF THE NEW BUILDINGS OF BEDFORD

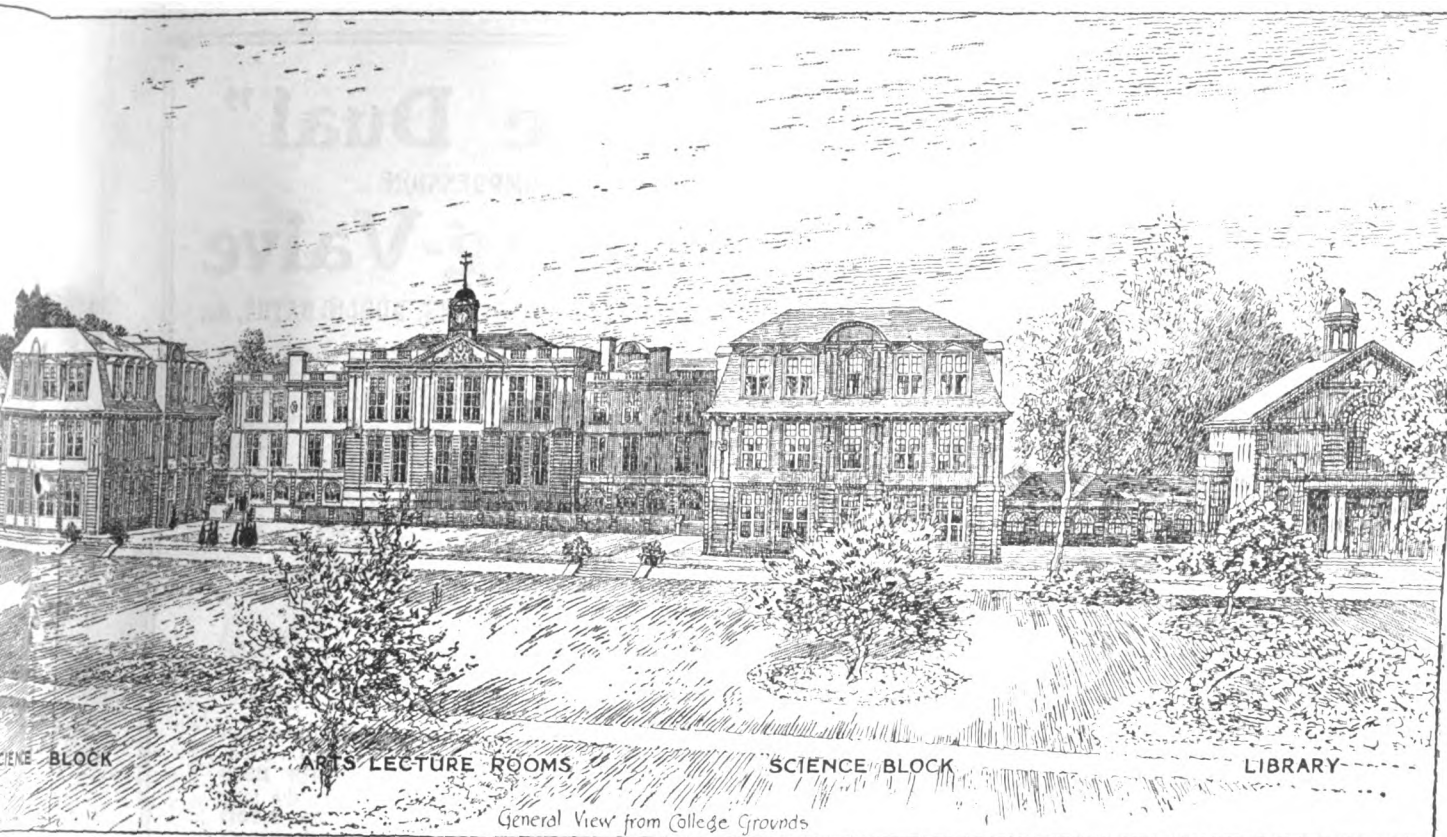
THOMAS ROWBOTHAM
CONTRACTORBASIL CHAMPNEYS
ARCHITECTBEDFORD COLLEGE FOR WOMEN,
REGENT'S PARK, N.W.

H.M. THE QUEEN opened the extensive new buildings at the above on Friday, the 4th inst.

The College originated in 1849 at No. 47 Bedford Square, when the first efforts were made to afford higher education for women. Its history has ever since been marked by continuous expansion. In 1908 the lease of South Villa in the

Inner Circle of Regent's Park was purchased. Later, about eleven acres were leased from the Crown. A sum of £130,000 has been raised during the past ten years for the building and endowment fund, of which £115,000 has been spent on the erection and equipment of the college.

The buildings are of brickwork, with Kendal's grey brick facings, having Lawrence's red brick rusticated quoins and rubbed and gauged brick mouldings. The roofs are covered



BEDFORD COLLEGE FOR WOMEN IN REGENT'S PARK

with plain tiles, except the flat slopes, which have Major's patent interlocking double Roman pattern patent tiles. The assembly and dining halls and the common rooms are panelled in oak. The fittings to science blocks were made by Mr. Thomas Rowbotham, the contractor. The steel construction and patent floors was carried out by Messrs. Homan & Rodgers. The heating, ventilation, and hot-water supplies are by Messrs. Haden & Sons. The lifts are by Messrs. Waygood & Co. The rainwater goods and stoves were supplied by Messrs. T. Elsley & Co., Ltd., and the sanitary fittings by Messrs. Shanks & Co.

Mr. Basil Champneys, 19 Buckingham Street, Strand, is architect for all the buildings except the library, which, being the gift of Lady Tate, was designed by her architect, the late Mr. Sidney Smith, of Adelphi, and completed by Mr. Brock. The contractor is Mr. T. Rowbotham, of Birmingham. The surveyors are Messrs. Hicks & Lynam, 3-7 Southampton Street, Strand.

The architect and builder were each presented to her Majesty on the occasion of the opening ceremony.

RURAL HOUSING.

At a meeting of the Council and Committee of the British Constitution Association, held at their office, 11 Tothill Street, S.W., on Friday, the 4th inst., Sir Graham Bower, K.C.M.G., in the chair, the following resolution was passed on the motion of Mr. Harold Cox, seconded by Sir William Chance:—

"In view of the present political agitation with regard to the supply of cottages in rural areas, the Council and Committee of the British Constitution Association wishes to enter an earnest protest against any building of cottages either by Local or by Central Government authorities. The effect of such interference with private enterprise must be to discourage the provision of cottages either in the ordinary way of business or by semi-philanthropic enterprise.

"Building schemes conducted by local authorities generally result in loss to the ratepayers. This is unjust to other householders, often as poor as, or poorer than, the persons who get the benefit of the cottages. Further, such expenditure of public money invariably involves increased interference by officials with the private affairs of the poorer classes.

"We therefore urge:

"(1) The cessation of cottage building by public bodies.

"(2) The abrogation or relaxation of many of the by-laws which now needlessly hamper cottage building.

"We further appeal to private individuals to form or

support co-operative companies for the building of cottages in rural districts. Such companies, though philanthropic in object, can be worked upon a sound commercial basis; for in every village there are some people who can afford to pay an economic rent for a good cottage, and by providing for their wants space will be left in existing cottages for poorer people."

PRINCIPAL OR AGENT?

In the King's Bench Division on Saturday, before Mr. Justice Atkin, an action was brought by Mr. Sidney Francis Bowling, trading as B. Ward & Co., flooring specialists, of Kingsway, Cardiff, against Mr. Henry Sanders, 10 Windsor Place, Cardiff, an architect, to recover £138 1s. 4d. for work and labour done in connection with the flooring of a building at Cardiff called the Gaiety Cinema Theatre, City Road, Cardiff, under an order of January 24, 1912.

The defendant denied that he was liable, and said he was not principal, but agent for a company.

Mr. Parsons appeared for the plaintiff, and Mr. Inskip for the defendant.

Mr. Parsons said that the plaintiff carried on business in Cardiff, and the defendant was also connected with Cardiff, where he practised as an architect. The defendant also engaged in the buying and selling business on his own account. He gathered that the defence was that the contract was not made by the defendant personally with the plaintiff, but by the defendant as agent for the limited company that had to do with the theatre, and which company had since been wound up.

Counsel proceeded to deal with the correspondence in the case, and detailed the circumstances under which the plaintiff came to estimate for the work and subsequently carried it out.

Mr. Bowling gave evidence in support of his claim. He said he had known the defendant for several years. He did not know that the defendant purported to act as agent for any company, and he did not hear of the existence of any company in relation to the building where the work was executed.

In cross-examination witness said he could not say who told him about the contract, but he did not hear of it through the medium of any advertisement on the building site. He knew that the defendant was the architect of the building, and he thought the project was one of his speculations, as he knew the defendant had gone in for a lot of such things. He never saw a prospectus of any com-



Stained Glass Windows & Leaded Glazing.

Specially designed in old
Colourings, to include
Armorial Bearings, &c.,
if desired.

Estimates and designs
submitted free for all
kinds of work, together
with testimonials show-
ing that work of highest
grade may be relied
upon.

Andrew Stoddart,

The Studio, 15 Long Row,
Telephone: Nottingham.
No. 261 Y.

(1)



SANKEY'S
POT.

DOWN DRAUGHT AND ITS CURE



Will you write to us for a fully illustrated
Booklet which will give full particulars?

J. H. SANKEY & SON,

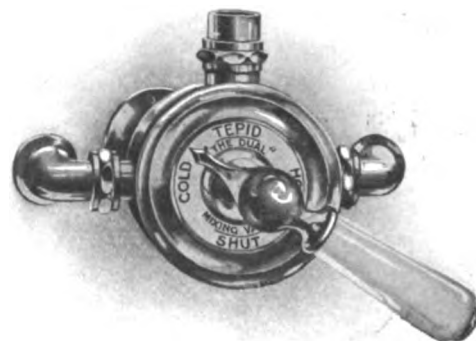
HEAD OFFICE: LTD.

ESSEX WHARF, CANNING TOWN, LONDON, E.

"The Dual"

COMPRESSION Mixing-Valve

FOR HOSPITALS, ASYLUMS, PUBLIC BATHS, &c.



The most complete Industrial Bath Installation
extant is that carried out by the LEEDS FIRE-
CLAY Co., Ltd., for Messrs. BRUNNER MOND
& CO. Bathing accommodation in the form
of Rain or Showers is provided for 2,000
EMPLOYEES. Every one of these is fitted with
one of our "Dual" Valves.

Gummer's LTD.,

EFFINGHAM BRASS WORKS, ROTHERHAM.

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2781 Gerrard.

Telegrams {"Anaglypta, London."
"Anaglypta, Darwen."}

LINCRUSTA-WALTON, CAMÉOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 3769 Gerrard.

Telegrams: "Lincrusta-Walton, London."

LIGNOMUR

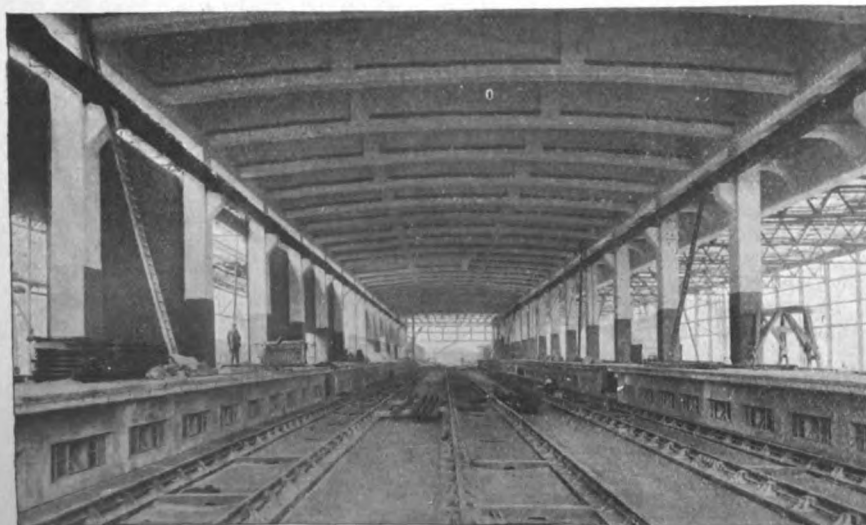
Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY—LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all
classes of buildings.

They are FIREPROOF,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use
in all parts of the world.

Arthur L. Gibson & Co.,

Radnor Works,
Strawberry Vale,
TWICKENHAM.

MANCHESTER:
33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:
79 West Regent Street.

”

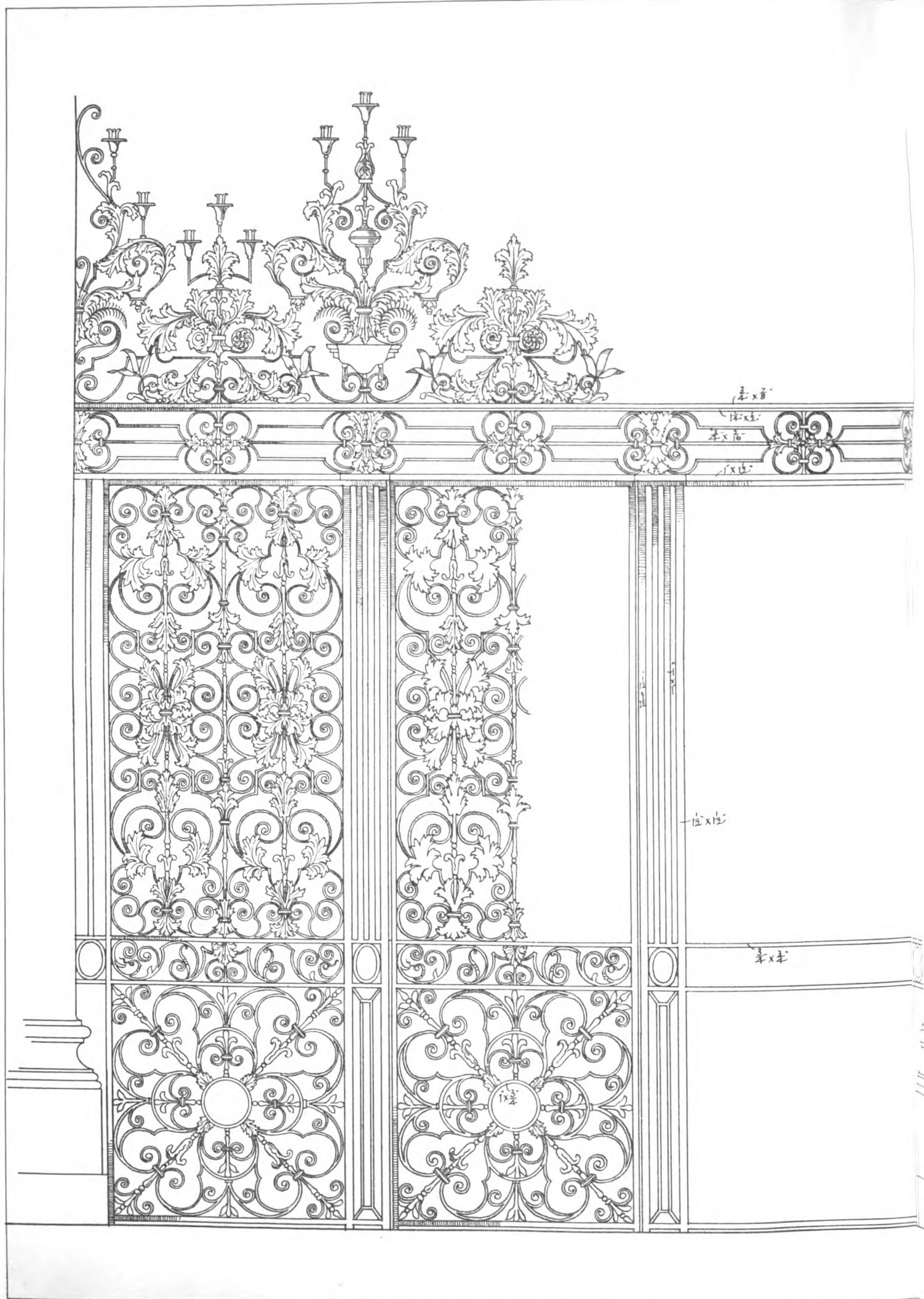
re

, &c.

,

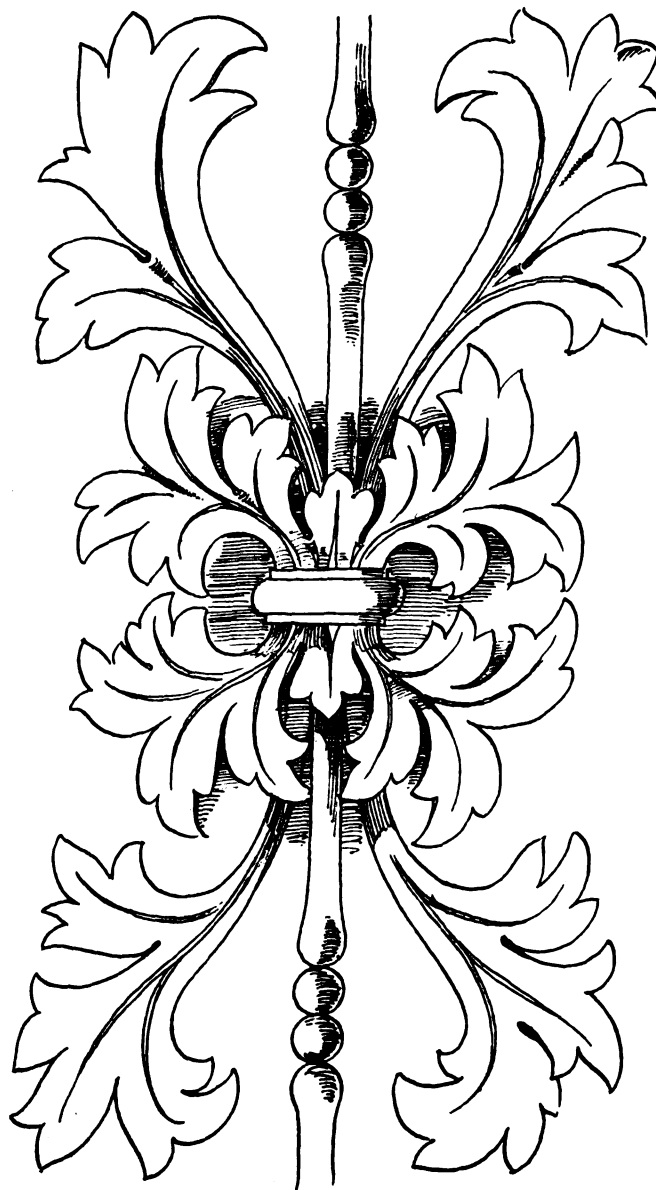
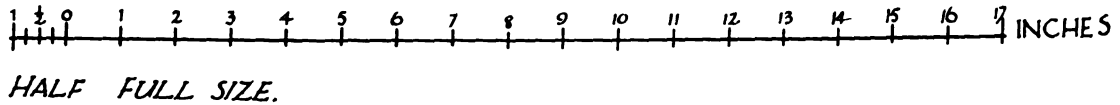
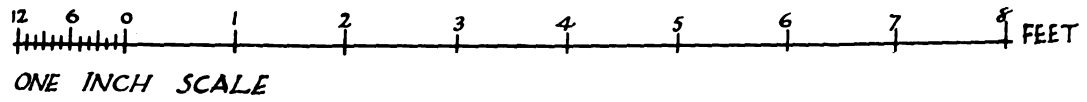
D.

L

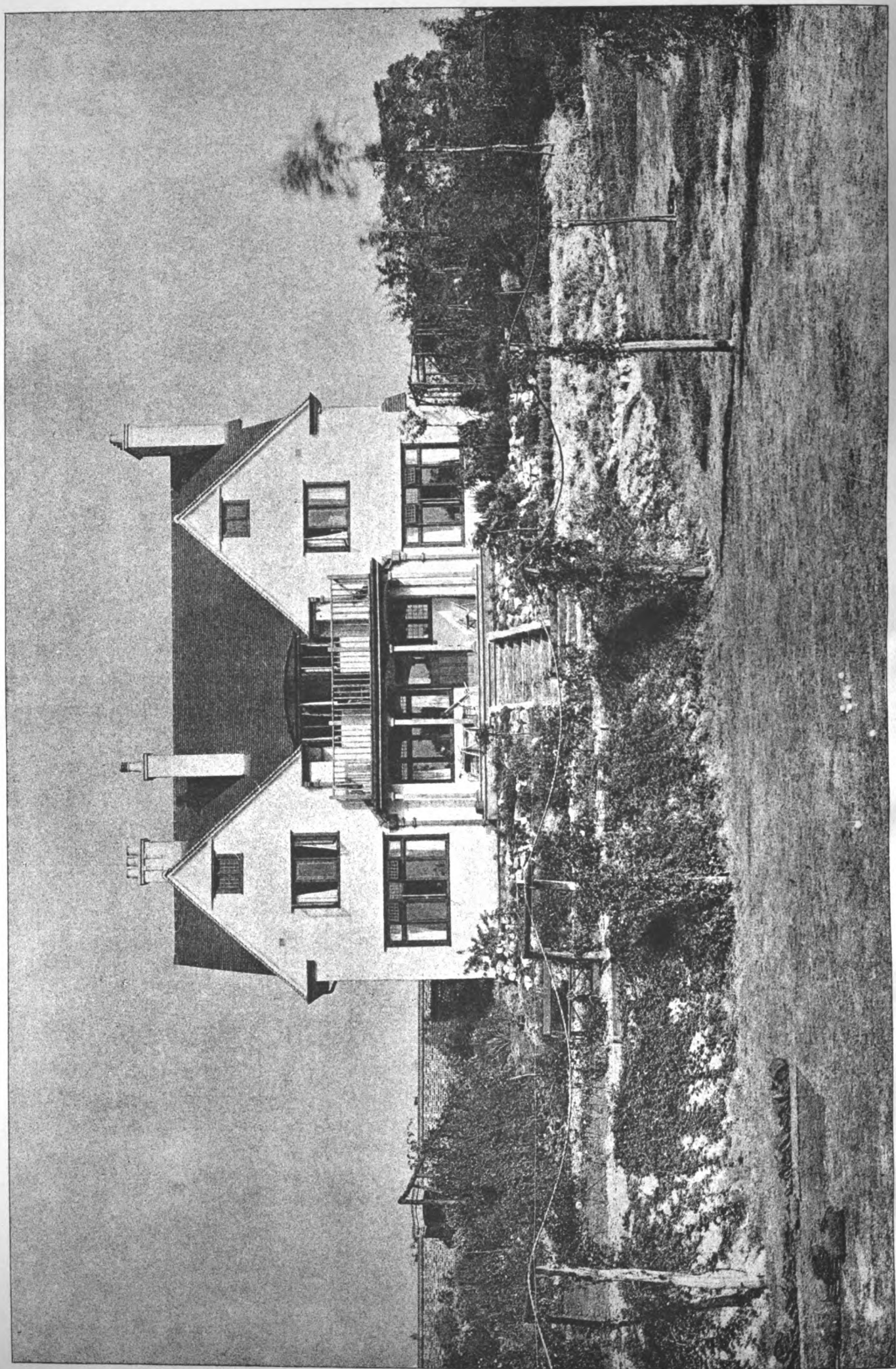


ST PAULS CATHEDRAL

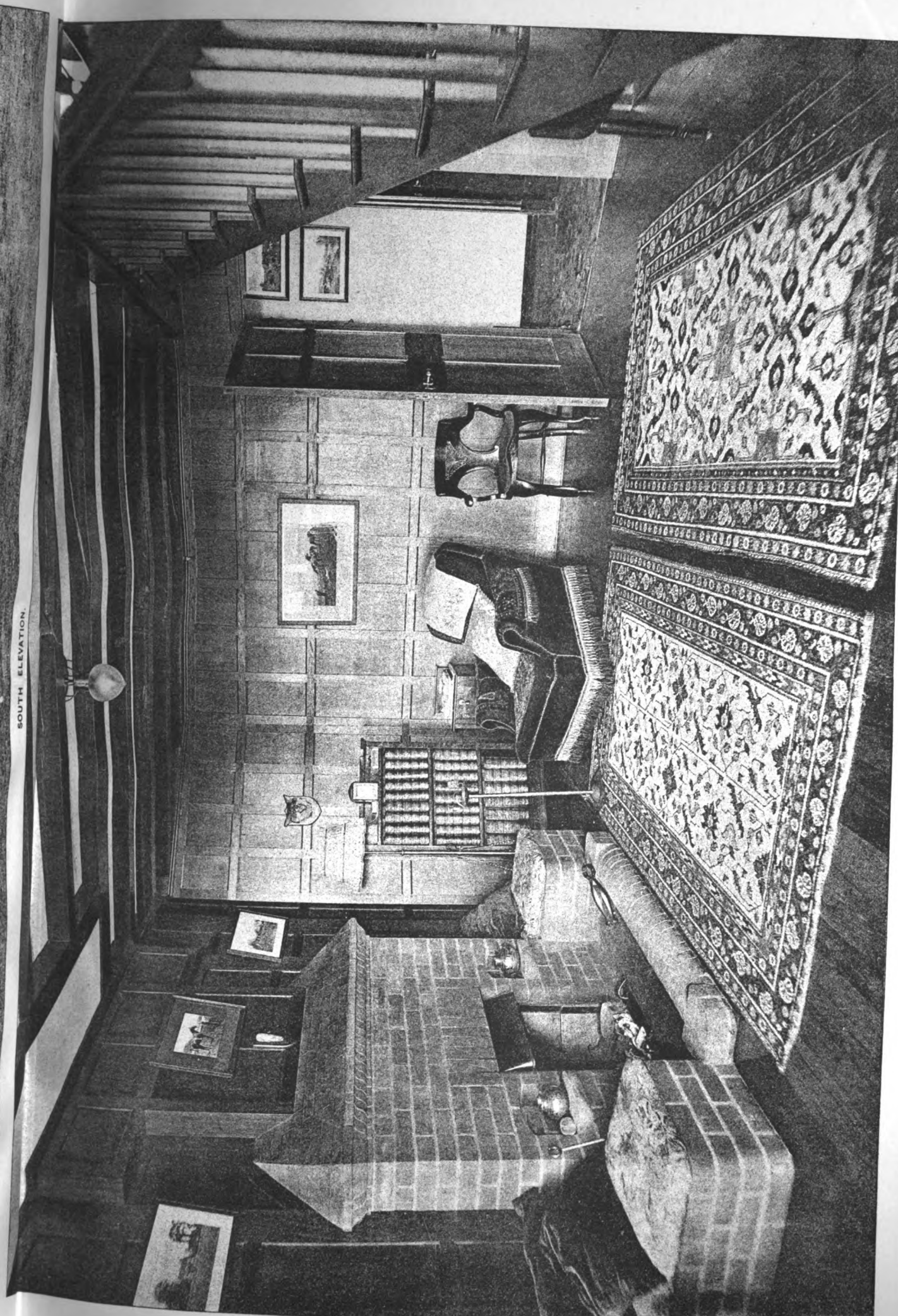
DETAIL OF CHOIR SCREEN.



The Architect, July 11th 1913.



SOUTH ELEVATION.



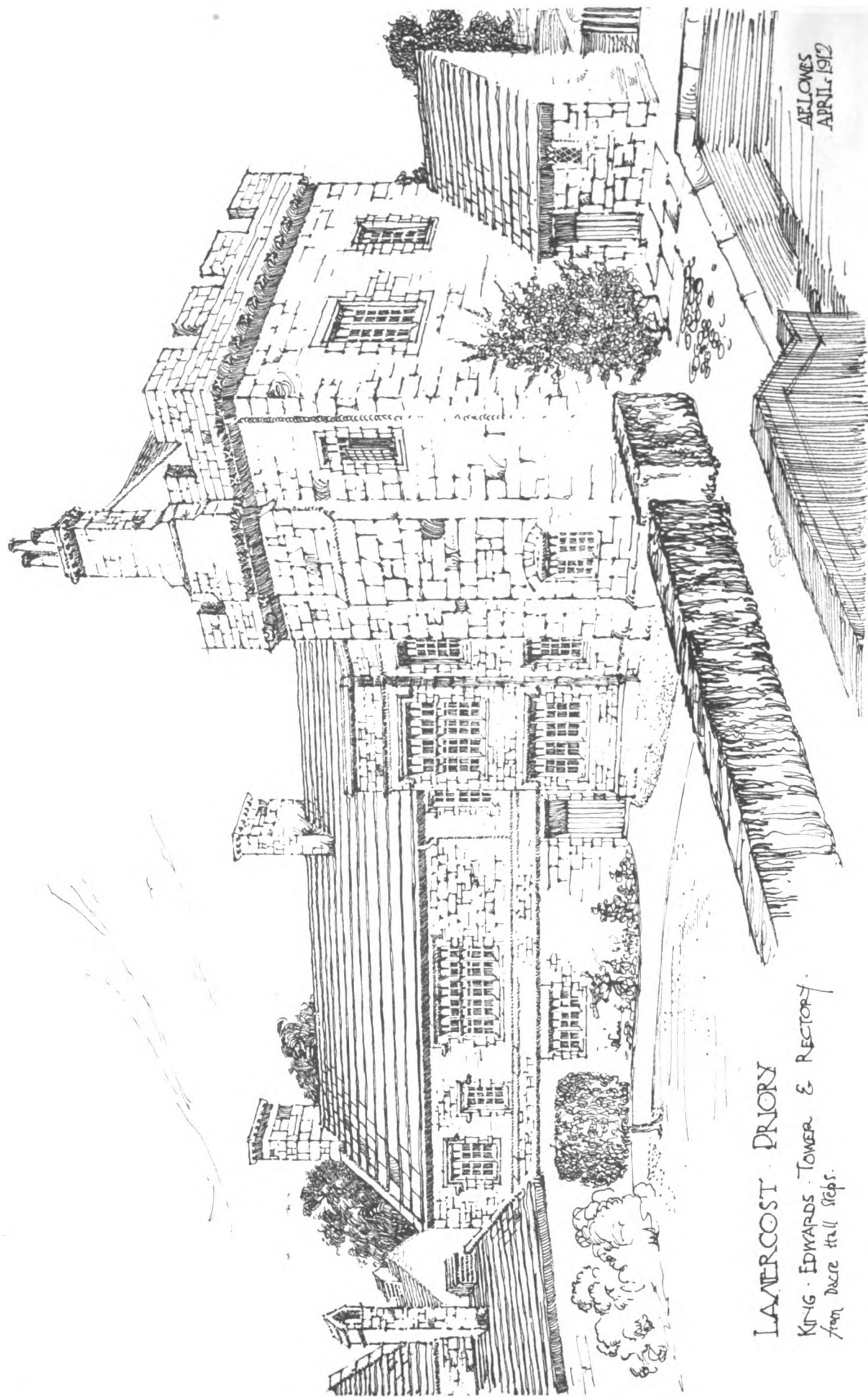
SOUTH ELEVATION.

THE HALL.

HOUSE AT REIGATE, SURREY.
Mr. C. E. SALMON, M.S.A., Architect.

"INK- PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

The Architect, July 11th 1913



LAVERCOST PRIORY
KING EDWARDS TOWER & RECTORY
from near the steps.

THE BUTTER COTTAGE
INDLOW

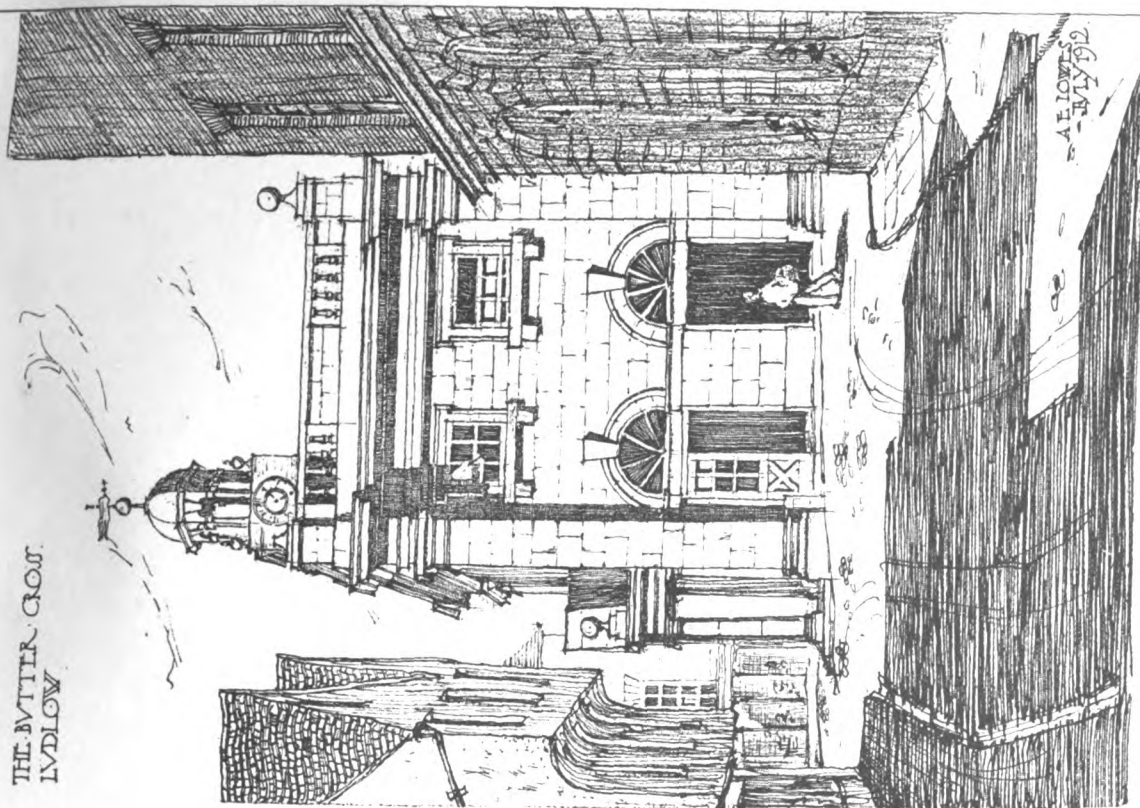
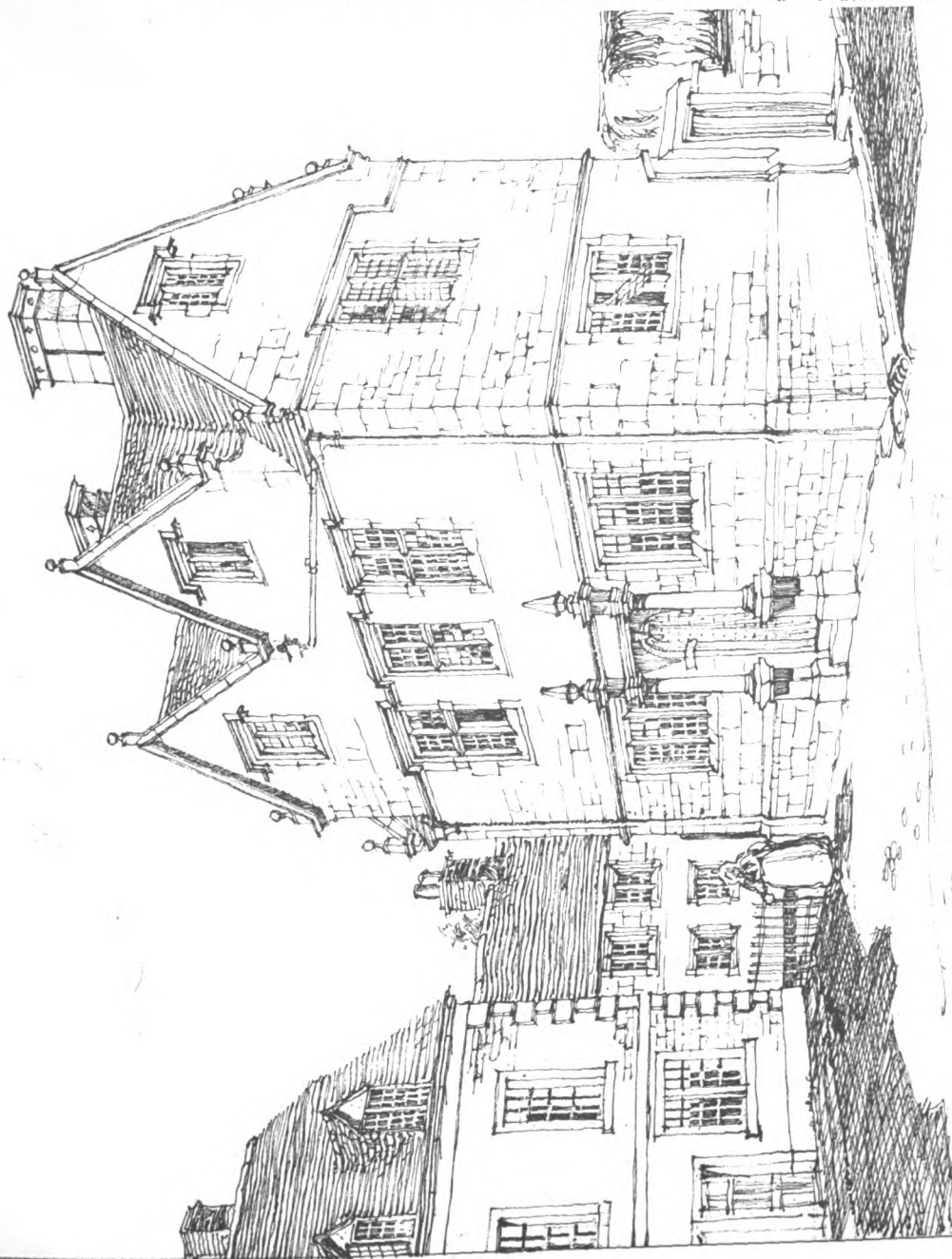


PHOTO-LITHO SPRAGUE & CO. LONDON 68 & 70, OLIVE STREET, BOMBAY

JACOBAN HOUSE
WINCHCOMBE GLOS.
Albert E. Lowes Oct. July 1912.



SKETCHES BY MR. ALBERT E. LOWES.

pany, and it was not suggested to him that if his work was accepted he should take some of the payment in shares.

For the defence the defendant, Mr. Sanders, deposed that a company called the Cardiff Electric Theatre and Rink Company was formed and a prospectus issued. He was architect to the promoters, and subsequently to the company. A board appeared on the building site producing details of the share capital of the company, and giving his (Mr. Sanders') name as architect. He did not enter into this contract as a principal at all.

Cross-examined, witness said he had only speculated on his own account in very small matters.

Subsequently evidence was given in further support of the case for the defence by Mr. Edgar Thomas, accountant, of Cardiff, and secretary to the company, and Mr. David John Davies, Queen Street, Cardiff, solicitor to the company. Mr. Davies said that the plaintiff asked for payment of his account, and he did not suggest that anybody else would be liable apart from the company.

Mr. Justice Atkin, in giving judgment, said he was satisfied that the plaintiff knew that Mr. Sanders had a principal, and knew that Mr. Sanders was acting as architect, but these facts being known, there was nothing to prevent Mr. Sanders from making himself personally liable. He thought he (the judge) was bound by the written contract, and the plaintiff would therefore succeed, but he was not satisfied with the verbal evidence of the plaintiff, and there would be judgment for the plaintiff, but without costs.

VICTORIA MEMORIAL, CALCUTTA.

THE following information appears, according to *Indian Engineering*, in the report of the Executive Committee of the Trustees for the year ended December 31, 1912. Mr. Alfred Drury has been appointed under a contract made by Sir William Emerson, F.R.I.B.A., for the design of the four panels at the sides of the north porch and the four spandril panels at the sides of the entrance arches to the north and south porches. A personal assistant to the superintending architect has been appointed on 300 rupees per mensem from January 1, 1912, so that there is now a superintending architect on 1,000 rupees and a personal assistant on 300 rupees per month. A proposal has been made, and is under consideration, to entrust to the Government School of Art, Calcutta, the preparation of some of the models for the decorative work. Much of the more important work of this kind has already been done, or arranged for, in England, but it is believed the rest can be done efficiently and more cheaply in India. It has been decided to substitute marble for Sheorajpur stone in the eastern and western quadrangles at an enhanced cost of 1,28,224 rupees. As regards weight of marble quarried, it has been settled that as every stone is being cut and dressed exactly to a template, and when ready carefully numbered according to plates; and as there is a list also of the actual number of each description of stone required for the different parts of the construction, and the stones are despatched according to their numbers, it will be sufficient if the Makrana daroga weighs 2 per cent. or so of each of the different descriptions, and, taking it as an average weight, bases on it his calculation for the whole consignment of that particular description despatched to Calcutta. The site for Queen Victoria's statue has been changed from its proposed position on the steps of the Victoria Memorial to the north of the Memorial Hall at the request of his Majesty on his late visit; and the site of the statue of Lord Curzon has been fixed for the position chosen by Lord Curzon himself. An opinion is expressed that a new road should be run from the south end of the Red Road to the north entrance of the Memorial, in order to give the Memorial an impressive approach; but this matter is to be left for discussion by the public till after the building has been completed.

In view of recent rumour regarding the possible failure of the supply of marble from the quarries at Makrana, leased to the trustees of the Victoria Memorial, the following statement has been issued by the Secretary of the Victoria Memorial Trustees:—

"There is no ground for the fears that have recently been expressed that the marble of the Makrana quarries is approaching exhaustion. Some years ago it was pointed out by Sir Thomas Holland that the marble ridge extended for some six miles, and, assuming that it would furnish only a thickness of 10 feet of suitable stone, that the marble obtainable for every 15 feet in depth would be enough to supply the material for a dozen structures of the size of the Victoria Memorial. As the result of a recent visit to Makrana, the

present Director of the Geological Survey has fully confirmed Sir Thomas Holland's figures. The ridge consists of two belts of marble separated from one another by a band of schist associated with a considerable amount of intrusive granite. The lower of the two marble belts is that which has been chiefly worked, and shows a continuous line of quarries, some of which reach a depth of well over 100 feet. The absence of mechanical means of raising the blocks renders further work by the primitive native methods slow and laborious, but exploitation still continues, and there is no sign of diminution in thickness of the band of marble.

"The upper belt comprises two bands of white marble interbedded with streaked varieties. These are being quarried on behalf of the trustees near Makrana Railway Station. Up to the present only one quarry has been opened, and this has been found too small to enable the supply of marble for the Memorial to keep pace with the demand. This is to some extent due to the fact that the total amount of stone required was judged to be too small to warrant the outlay involved in the erection of extensive modern quarrying machinery for which there might be no demand after the Memorial had been completed; hence the only advance on native practice has been the introduction of a steam crane for hoisting the quarried blocks to the surface. In order to counterbalance the loss of economy and inefficiency involved in this method of working, it will be necessary to open up a considerably larger amount of ground than would otherwise be required. This, however, offers no difficulties, since the small quarry at present being worked represents only a fraction of the total area reserved for the Victoria Memorial, and by extending the present working face and increasing the number of cranes the desired rate of output from the quarries should be attained without difficulty.

"Some doubt has also been expressed as to the possibility of obtaining sufficient quantities of pure white stone. It was originally estimated that a total thickness of 20 feet of stone suitable for use in the Memorial would be available. This figure includes both white and grey-streaked varieties, and does not imply that there is only a single bed of white marble 20 feet thick. The pure white beds, in fact, are rarely more than 3 feet thick, and are interbedded with varieties consisting of brown, red, or grey streaks on a white ground. Except, therefore, where blocks of pure white marble more than 3 feet thick are required, the white bands will furnish all the material required, especially if the longest dimensions of the blocks are taken parallel to the bedding. The structure of the marble is such that this could be done with safety, and it should not be necessary to employ any material so inferior as the average quality of the marble used throughout the Taj.

"The general conclusions drawn by Mr. Hayden from his recent visit to Makrana are:—

"(1) That the amount of suitable marble is more than sufficient;

"(2) That quarrying operations have been carried out hitherto on much too small a scale, and that any desired rate of output can be attained even with the present primitive methods of working by increasing the length of the working face and expediting the rate of extraction of the marble blocks by the erection of several new cranes."

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Newbury.—Council Infant School. Council surveyor.

Windsor.—Drill Hall, High Street, for the local Territorials.

CHESHIRE

Bramhall.—Golf Club House.

Macclesfield.—Council School, Hurdsfield.

CORNWALL.

Lostwithiel.—School of Handicraft, for the Council.

Penzance.—(Amended from 4th inst.)—Forty-two workmen's houses (£7,800). Mr. F. Latham, Council surveyor.

CUMBERLAND.

Dale Head.—Reading Room, Martindale. Mr. W. Gisen-thwaite Exors., contractor, Lowther Street, Penrith.

SPECIFY**CLARIDGE'S****PYRIMONT-SEYSSEL
ASPHALTE****FOR DAMP-COURSE,
ROOFS · FLOORS
ETC.****CLARIDGE'S PATENT ASPHALTE CO., Ltd.
21 SURREY STREET, STRAND, W.C.**TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."**Orr's Zinc White Limited**

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.****ZINC SULPHIDE WHITE** (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.**"SILOX,"** a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

DERBYSHIRE.

Derby.—Hippodrome, Green Lane and Macklin Street.
Hayfield.—Conservative Club: alterations and extensions.
Shirebrook.—Baptist Chapel.
Woodseats.—(See Sheffield.)

DEVON.

Pennsylvania.—House. Mr. H. Reed, F.R.I.B.A., architect, 12 Castle Street, Exeter.
Taignton.—Council School, Exeter Road: Centre for cookery, laundry and housewifery. Council architect.
Tiverton.—Drill Hall and Headquarters for "E" Company, 4th Batt. Devon Regiment. Messrs. Ellis, Son & Bowden, F.S.I., architects, Bedford Chambers, Exeter.
Whipton.—Isolation Hospital for the City of Exeter (£16,000).

DURHAM.

Annfield Plain.—Collierley Council School: additions and alterations. Mr. W. Rushworth, F.R.I.B.A., architect, Shire Hall, Durham.
Greencroft.—Council Schools for 900 places. Messrs. Marshall & Tweedy, architects, 17 Eldon Square, Newcastle-on-Tyne.
Sedgefield.—Workhouse extension (£900).

ESSEX.

Braintree.—Villas, Grenville Road, for Mr. W. Smith and Mr. A. H. Wicks.
Tilbury.—Thirty houses, North Ward; and 102 houses, South Ward. Messrs. Pepler & Allen, A.R.I.B.A., architects, 4 Arundel Street, Strand, London, W.C.

GLOUCESTERSHIRE.

Dursley.—Thirty-eight workmen's cottages. Mr. A. W. Probyn, architect, 9 Berkeley Street, Gloucester.

HERTFORDSHIRE.

Bishop's Stortford.—College: Boarding-house.

HUNTINGDONSHIRE.

Huntingdon.—Weights and measures offices. Mr. H. Leete, County surveyor, 36 High Street.

KENT.

Cudham.—County School. Mr. W. H. Robinson, architect, Caxton House, Westminster, London, S.W.
Herne Bay.—Laundry, High Street. Mr. A. H. Woolf, architect.

LANCASHIRE.

Lancaster.—Lune Works: mill for Lord Ashton.

LINCOLNSHIRE.

Gosberton Risegate.—Vicarage house.

NORFOLK.

Great Yarmouth.—Nurses' Home: additions. Messrs. Olley & Haward, A.R.I.B.A., architects, 5 Queen Street.

NORTHAMPTONSHIRE.

New Duston.—(Supplementary to 4th inst.)—Nonconformist Chapel (accommodation for 75 people) £500. Mr. F. H. Allen, A.R.I.B.A., architect, Glasgow Street, St. James, and 6 Mercer's Row, Northampton. Mr. J. W. Lack, contractor, Greenwood Road, St. James.
Northampton.—Doddridge Memorial Church and Sunday Schools. Mr. F. H. Allen, A.R.I.B.A., architect (as above).
Weston Favell.—Church Schools (for 130 places) £1,600. Messrs. Law & Harris, F.R.I.B.A., architects, 1 Sheep Street, Northampton. Mr. W. Heap, contractor, Lea Road, Northampton.

NOTTINGHAMSHIRE.

Worksop.—Council School for 320 places (£4,350).
Sutton-in-Ashfield.—Council School for 700 places (£9,200).

SOMERSET.

Minchew.—Theatre (accommodation for 700 sittings), shops, &c. Mr. W. J. Tamlyn, architect, Northfield Road.
Parlett.—Church of St. John the Baptist: restoration (£1,500).
Weston-super-Mare.—Court House, New Street.

STAFFORDSHIRE.

Brindley Heath.—One hundred workmen's houses, for the West Cannock Colliery Co.
Lichfield.—St. Michael's C. of E. School: alterations and improvements.
Stafford.—Blacksmith's shop, Canal Wharf, Bridge Street. Mr. Charles Holder, builder, 170 Great Brickkiln Street, Wolverhampton.
Factory, Sandon Road: extension of garage for Messrs. E. Bostock & Co., Ltd.
House, Corporation Street, for Mr. J. Silvester.

Walsall.—Girls' High School, Forster Street: alterations and extensions, for the Governors of Queen Mary's School.

SURREY.

Burstow.—House, Shipley Bridge Lane. Messrs. Baker & Baker, architects, Massetts Road, Horley.
Epsom.—Technical Institute: enlargement (£2,500).

SUSSEX.

Worthing.—Town Hall: alterations.

WARWICKSHIRE.

Birmingham.—St. Edward's R.C. School, Selly Park: enlargement for an additional fifty places.
Coleshill.—Maxstoke Schools: additions and alterations. Messrs. Buckland & Farmer, architects, Norwich Union Chambers, Congreve Street, Birmingham.

WILTSHIRE.

Wootton Bassett.—House, Station Road. Mr. H. A. Trow, architect.

WORCESTERSHIRE.

Malvern.—House, Cockshot Road. Mr. A. T. Griffith, architect, The Priory Gateway.
 "St. Quentin," Tibberton Road: additions. Messrs. Yeates & Jones, A.R.I.B.A., architects, 8 Foregate Street, Worcester.
Malvern Link.—"The Hermitage": additions. Mr. C. Davis, builder.

YORKSHIRE.

Gomersal.—Mills, for Messrs. T. Burnley & Sons, Ltd. Mr. C. D. Swale, architect, 5 Cabinet Chambers, Leeds.
Leeds.—Institute for National Children's Home and Orphanage. Messrs. W. J. Morley & Son, architects, 269 Swan Arcade.
 Overseers' Offices, Headingley. Mr. A. Neill, F.R.I.B.A., architect, 38 Park Row.
Shadwell.—"Mistals." Messrs. Nelson & Birkinshaw, architects, 15 Park Row, Leeds.
Sheffield.—Norfolk Market Hall: additions and alterations. City architect, Town Hall.
 St. Clement's (Eyre Memorial) Church, Newhall (£6,000).
 Elementary Council School for 800 places, Barnsley Road.
 Elementary School, Woodseats.
 Greystones Council School: enlargement (£6,400).
 Highfields Special School: extension (£2,500).

WALES.

Baumaris.—County Schools: additions. Mr. J. Owen, F.R.I.B.A., architect, 4 High Street, Menai Bridge.
Cardiff.—National Schools, Grangetown: alterations. Mr. J. Coates-Carter, F.R.I.B.A., architect, Bank Buildings, St. Mary Street, Cardiff.
Crickhowell.—C. of E. School: alterations. Mr. J. V. Richards, M.R.S.I., architect.
Llysfaen.—Pumping Station: extension, &c. Messrs. T. B. Farrington & Son, civil engineers, Llandudno.
Ynysybwl.—Constitutional Club: alterations. Mr. E. J. Evans, architect, Tonypany.
Ystradgynlais.—Council Offices. Mr. J. C. Rees, architect, Parade Chambers, Neath.
Ystrad Mynach.—Two business premises. Messrs. Seaborne & Cayley (of Hengoed), architects.

SCOTLAND.

Buckburn.—Infant School, gymnasium, &c. Mr. G. B. Mitchell, architect, 148 Union Street; also Public School: addition and alteration; also Stoneywood School: additions and alteration.
Campbeltown.—Combination Hospital, Calton: Sanatorium pavilion (£1,500).
Cowdenbeath.—School, Mossie Road, for the School Board.
Dundee.—Boiler house, &c., Stobswell Road, for the Buist Spinning Co., Ltd.
 Property, Pinkerri Road: additions for the Dundee Water Commissioners.
 Semi-detached villas, Tullidelph Road, for Mr. G. Culherbert.
 Calendar Works, Cowgate, for the East Port Works Co.
Edinburgh.—St. Catherine's Bank Dairy, Jock's Lodge: alterations for Mr. J. Stevenson.
 No. 25 Shandwick Place: alterations for Lipton, Ltd.
 Two double villas, Abercorn Avenue, for Mr. Alex. Miller.
Fraserburgh.—Coal Store for the Fraserburgh Co-operative Society. Mr. W. E. Gauld, F.R.I.B.A., architect, Saltoun Chambers.

RUBEROID SARKING FELT - - -

IN USE ON

Hever Castle, Kent.
Weasenham Hall, Norfolk.
Quarr Abbey, Isle of Wight.
Uplands Schools, St. Leonards.
Holy Cross Schools, Bedminster.
Littlemore Asylum, Oxon.
Lloyds Bank, Carnarvon.
Lloyds Bank, Smethwick.
Nurses' Home, Salop Infirmary.
St. Bede's Church, Cumberland.
Congregational Church, Northampton.
&c., &c.

INODOROUS, NON - CONDUCTING, WATERPROOF.
SAMPLES AND PARTICULARS ON APPLICATION.

The RUBEROID COMPANY, Ltd.

22 WATERLOO HOUSE, KNIGHTRIDER STREET, LONDON, E.C.

2 FORTH STREET, NEWCASTLE-ON-TYNE.

37 ASSEMBLY STREET, LEITH.

1 ASTON'S PLACE, DUBLIN.

3

JAMES GIBBONS

Designer and Manufacturer
of Door Furniture, Locks, Art,
Metal Work, Wrought Iron and
Steel Casements, Electric Fittings,
Gates, Railing, Covered Ways, Lift
Enclosures, Grilles, etc., etc.

ST. JOHN'S WORKS, WOLVERHAMPTON.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS, and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co., Ltd., 105 Albion St., LEEDS.

"Exmet" Brickwork Reinforcement

A NEW TYPE OF EXPANDED METAL
FOR REINFORCING BRICKWORK, Etc.

IMPORTANT NOTICE



Statements have been published implying that the use of "EXMET" for brickwork reinforcement constitutes an infringement of certain Patents, controlled by other manufacturers, and threats of actions for infringement against users of "EXMET" for brickwork reinforcement have been made.

The Expanded Metal Company denies any such implication, but the statements have been too vague, as yet, to admit of any action being taken to stop them.

The Company undertakes to protect its customers who use "EXMET" or any of its products for brickwork reinforcement, by indemnity and guarantee against all damages for any actions for infringement.

THE EXPANDED METAL COMPANY Limited,

Patentees and Manufacturers of EXPANDED METAL.

HEAD OFFICE

(to which address enquiries should be sent):

York Mansion, York Street, Westminster,

Telegrams:— London, S.W.

"Distend, Vic., London."

Telephones:— Gerrard 819; Victoria 1514.

WORKS

(to which address orders should be sent):

Stranton Works, West Hartlepool.

Telegrams:—

"Expansion, West Hartlepool."

Telephone:—

94 West Hartlepool (2 lines).

April, 1913

SCOTLAND—continued.

Glasgow.—Dixon Hall, Cathcart Road: additions and alterations, for the Corporation; also
Meat Market, Hill Street: addition; also
Cattle market, Graham Square: boiler-house; also
Dispensary, Brown Street.
Bottle Works, Broad Street, Mile End, and additions to buildings, Greenhead Street, for the Mile End Bottle Works.
Victoria Infirmary: additions.
Works, Cathcart: additions for Messrs. J. & G. Weir.
Workshops, Finnieston Street: extensions for Messrs. D. Carlaw & Sons.
Buildings, Port Dundas, for the Distillers' Co., Ltd.
Hamilton.—Electricity Works, Almada Street: additions for Messrs. Edmundson's Corporation, Ltd. (£9,000 to £10,000).
Paisley.—U.F. Church, George Street: Halls.

IRELAND.

Carlow.—Cathedral: additions. Messrs. A. Scott & Son, M.R.I.A.I., architects, 49 Upper O'Connell Street, Dublin.
Dublin.—Workhouse: alterations (£5,500).
Kilglass (Co. Sligo).—"Meadowside House": additions and alterations. Mr. J. S. Cairns, C.E., architect, Ballina.
Kilskerry.—Temperance Hall. Mr. T. F. McNamara, architect, 192 Great Brunswick Street, Dublin.

PATENT SPECIFICATIONS PUBLISHED
JULY 3, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

- No. 1,657. June 21, 1912.—P. H. Bergasse, Finsbury Court, Finsbury Pavement, E.C. Petrol-gas lighting and heating systems.
5,841. March 8, 1912.—C. H. Sidebotham, 3 Macdonald's Lane, Corporation Street, Manchester. Windows.
8,475. April 10, 1912.—Robert Thomson, 164 Nithsdale Road, Pollokshields, Glasgow. Metal concrete reinforced floors.
13,804. June 12, 1912.—Joseph Gourdon, 34 Rue Alexandre Dumas, Paris. Swivel joint particularly applicable to electric lamp and other similar supports.
13,865.—June 13, 1912.—Gustave Markt, The General Accessories Co., Ltd., 148 Curtain Road, Shoreditch. Construction of electric ceiling roses.
13,884. June 13, 1912.—Alfred Emley, 13 Lovaine Row, Newcastle-on-Tyne, and E. F. W. Liddle, 12 Eldon Square, Newcastle-on-Tyne, architect. Boiler and other furnaces, domestic stoves, ranges and the like.
14,137. June 17, 1912.—D. R. Cooper, Spotswood, and E. M. Murley, Devon Street, New Plymouth, and J. V. Wyborn, Inaha, Hawera, Taranaki, New Zealand. Paint.
14,161. June 17, 1912.—G. P. M. Lee, 13 Ryde Vale Road, Balham, S.W., and W. A. Brame, 52 Montpelier Gardens, Central Park Road, East Ham, E. Joints and couplings for pipes, tubes and the like.
14,472. June 20, 1912.—Milner's Safe Co., Ltd., 28 Finsbury Pavement, E.C., and C. A. Ely, May Villa, Disraeli Road, Forest Gate, E. Mechanism for retarding the lowering of roller blinds or shutters, screens, fireproof curtains and like appliances.
20,322. Sept. 6, 1912.—W. A. Lawton, 1 Upper Montague Street, Russell Square, W.C. Gas and like cooking stoves.
21,067. Sept. 16, 1912.—E. E. Mercier, 40 Rue Beaugrenelle, Paris. Water-heating devices.
22,594. Oct. 4, 1912.—J. J. Ferguson, 50 Wellington Street, Glasgow. Heating apartments in buildings and ships with hot water.
23,018. Oct. 9, 1912.—W. H. Cheadle & Waltho, Ltd., and F. P. Waltho, Union Street, Wolverhampton. Case-ment stays.
23,866. Oct. 18, 1912.—Dated under International Convention, Oct. 18, 1911. Paul Fischer, 29 Hohenheimerstr., Stuttgart, Germany. Gas stoves.
24,037. Oct. 21, 1912.—Siemens & Halske A.G., Askanischer Platz 3, Berlin, S.W. Signalling installations more particularly adapted for fire-alarms.
26,064. Nov. 13, 1912.—Dated under International Convention, Nov. 14, 1911. Hermann Kopplinger, Kerklotz-gasse 23, Vienna XV. Apparatus for manufacturing iron window bars.

28,366. Dec. 9, 1912.—Dated under International Convention, Dec. 7, 1911. A. R. Eichler, 1317 F. St., Sacramento, California, U.S.A. Cushion head for concrete piles.

28,873. Dec. 16, 1912.—A. S. Miller, General Delivery, Monroe, Ouachita, and J. W. Clark, General Delivery, Vivian, Louisiana, U.S.A. Adjustable bracing for buildings, bridges and the like.

227. Jan. 3, 1913.—Carl Schmidt-Frey, Hardturmstr. 68, Zurich 111. An element to be used in the building of walls.

297. Jan. 4, 1913.—A. Emanuel & Sons, Ltd., 13 George Street, Manchester Square, W., C. T. Smith, 1 Mayfield Avenue, High Road, Chiswick, W., and M. J. Snell, 38 Chippenham Road, Paddington W. Flushing cisterns.

564. Jan. 8, 1913.—C. F. Gaunt, 12 Frederick Street, Birmingham. Retail store buildings and warehouses.

1,893. Jan. 23, 1913.—Hugo Heinze, Brauhausgasse 202, Fischen, Karlsbad, Bohemia. Jointing metal sash bars.

3,383. Feb. 10, 1913.—Benedikt Rutti, Balsthal, Solothurn, Switzerland. Locking device for double French glazed windows and doors.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

The University of Sheffield, Department of Architecture,
Tour in France.

SIR.—Will you kindly grant me space in your correspondence columns in which to announce an alteration in the arrangements for the above tour from Paris to Autun, Blois, Bourges, Chartres, &c.

The tour will start on August 11, instead of on August 4 as previously announced.

As there has been some misunderstanding on this point, I should also like it to be made known that, as in the case of all other courses at this University, this vacation course is open to ladies, and, as a matter of fact, two or three ladies have already decided to join the tour.

I shall be glad to supply further particulars of the tour to any desiring them.—Yours truly,

The University, Sheffield.

W. S. PURCHON.

Professor Petrie's Collection.

SIR,—It will be remembered that, by the public-spirited action of Professor Flinders Petrie, the University of London was given the option of taking over for the Department of Egyptology at University College his Egyptian collection for the price of £5,985—a price that merely recoups his expenses, and is far below the present value of such objects.

I am desired by his Royal Highness Prince Arthur of Connaught, president of the fund, to announce through your columns that the sum needed for the exercise of this generous option has now been raised. His Royal Highness desires me to express his gratification at this satisfactory result, in which he and the committee over which he presides have been helped by generous and timely aid.

By the generosity of these subscribers, a collection that has taken over thirty years to form, and on which Professor Petrie has expended enormous labour, will be placed permanently in London, and will help to secure the efficiency of the teaching of Egyptology. In view of the responsibility of England towards Egypt, it is most desirable that the study of that land should be facilitated, so that those connected in various ways with it should not be in ignorance of its importance.—I am, Sir, yours faithfully,

RUPERT GUINNESS,

Hon. Treasurer, University College, London,
Equipment and Endowment Fund.

THE Architectural Association Camera Sketch and Debate Club have arranged a foreign tour to Chartres and district from Friday, July 25, to Monday, August 4. The estimated cost, inclusive of hotels, food, and fares, is £7 7s. Members who propose to join should send in their names by the 18th inst. to Mr. W. Harold Jones, Hon. Secretary, 24 Sunnyside Road, Hornsey Lane, N.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curcaroid, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved HOT WATER TANKS
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.

No India Rubber
Ring Required.

□

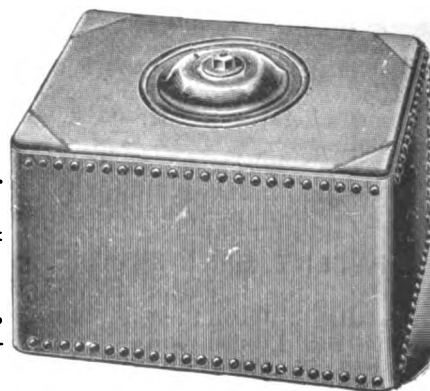
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



IRON KECS, DRUMS & CANS,
GALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.

— THE — Universal Concrete & Construction Co. Ltd.

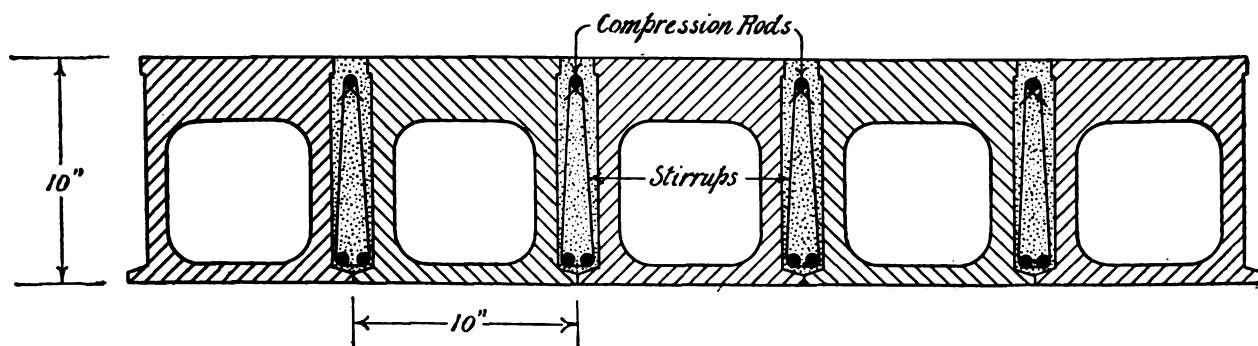
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without Beams projecting below the Ceilings, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
The New Delhi	49
Notes and Comments	50
London County Council	52
Copies of Old Masters by M. Maroger	52

Illustrations:—

Prudential Assurance Buildings, Middlesbrough and Doncaster	52
House, Furze Hill, Burgh Heath	52
King Edward VII. Memorial, Croydon	52
French Balcony from the Palace of Versailles	52
Architecture in St. Petersburg (illustrated)	53
Squalid London and the Indifferent Londoner	53
Atmospheric Pollution in Exeter	59
Kelvin Memorial	60
Development of New Areas on Town Planning Lines	61
Hanging Corner Cabinet in Mahogany (illustration)	61
Notes on Books	63
Hotel Savoia, Florence (illustration)	64
St. Mary's Church, Beverley (illustrated)	64
Building Progress in the Provinces	67

	PAGE
British Patent Specifications	69
"Lister-Bruston" Light and Power Plant	71
British Fire Prevention Committee	71
Correspondence	71

FORTHCOMING EVENTS.

Friday, July 18.

Architectural Association: School of Architecture; Breaking-up Ceremony at 3 P.M.

Tuesday, July 22.

Royal Archæological Institute: Summer Meeting opens at Exeter (July 22-30).

Thursday, July 24.

Northern Architectural Association: Annual Excursion to Richmond.

Friday, July 25.

Architectural Association Camera, Sketch, and Debate Club: Foreign Tour to Chartres and District (July 25-August 4).

Saturday, July 26.

Upper Norwood Athenæum: Excursion to Colchester (Whole Day). Mr. H. W. Burrows, A.R.I.B.A., leader.

THE NEW DELHI.

THE three reports of the Delhi Town-Planning Committee make interesting reading, not only from the importance of the subject, the future capital of the Indian Empire, but also from the illustration and insight that it affords into the actualities of town-planning in the hands of those whom we must accept as the chosen experts to whom has been entrusted by the Indian Government the task of determining the future of a new city of the highest importance. The problem placed in the hands of the Committee for solution is divisible into two sections—first, the selection of a suitable site for the new Delhi; second, the use to be made of that site.

The first report deals with the selection of the site. The considerations which the experts of the Delhi Town-Planning Committee felt to be paramount, and to which they devoted in their deliberations the closest and most continual attention, may be taken as an exposition of the general principles that should guide the choice of site for a city of Imperial importance, and are (a) health and sanitation; (b) water-supply and irrigation supply; (c) the provision of ample room for expansion; (d) an extent of land suitable for the location of buildings of various characters and sizes, and for the provision of spacious parks and recreation grounds—to be assumed at ten square miles for the new city and fifteen square miles for the cantonment; (e) cost of land and the cost of executing necessary works on different sites; (f) facility for external and internal communication; (g) civil and military requirements.

The Committee were instructed that in the matter of a site their choice was to be entirely unrestricted, but there was undoubtedly a popular, if not official, idea that the scene of the great Durbar, at which their Majesties made their appearance before the representatives of the Indian peoples as rulers of the Empire, and where they laid the commemorative stones of the change of capital, would receive preferential consideration.

The present city of Delhi lies on the western side of the river Jumna, which here runs approximately from north to south, and the areas which the Committee had to consider as possible sites for the new city were:

(1) The land on the eastern bank of the Jumna—that is, on the opposite side of the river to the old city; (2) the Durbar area and adjacent sites to the north of the present Delhi on the west bank of the Jumna; (3) the western slopes of the hills to the south of Delhi; (4) the eastern slopes of the hills to the south of Delhi.

The first of these possible sites is very shortly dis-

missed by the Committee as altogether unsuitable, since large portions of the riverain are subject to flood, and are unhealthy, whilst the land behind the riverain is flat and uninteresting with a high subsoil water level. The fourth area, styled for convenience the Naraina Plain, which, whilst in many ways well suited to the location of a town, and naturally healthy, the Committee consider is too much separated and dissociated from the present city to be considered as Delhi; hence in their opinion this area must be left out of consideration as a site for the Imperial city, although well suited, and already approved by the military authorities as an ideal site for a cantonment.

There remain then as the chief competitors for the honour of being chosen as the location of the new Imperial capital, the Durbar area and its adjuncts north of the old city, and the so-called "southern site" on the eastern slopes of the hills to the south of the present Delhi, and between the hills and the river Jumna. The Committee first of all exhaustively discuss the merits of the Durbar site. The advantages of this site are set forth and recognised by the Committee, but when it came to be considered in detail the Committee found many disadvantages and difficulties. Thus the Committee lay down the axiom that if the Imperial capital is to be favourably situated so as to present an effective appearance it should, if possible, be approached along a line of rising ground, and point out that, with regard to this area, the approach from Delhi to the new centre of population would necessarily be along a falling line leading towards low-lying land flanked by flooded areas. The actual site of the Durbar camps is to a large extent liable to floodings, the subsoil water stands high, it is unhealthy and malarial. Another objection to the northern site is the presence therein of the manufacturing suburb of Sabzi Mandi, which occupies one of the best points in the site, where the principal road for communication direct with Delhi would have to be through the break in the Ridge. No fine scheme, say the Committee, could be put forward for the site, which would not entail the removal of this manufacturing suburb.

Summing up the points against the Durbar area the Committee consider that: (a) To put forward any scheme worthy of the Imperial capital would involve the acquisition of the Civil Lines, Sabzi Mandi, and the Delhi gardens, entailing a large expenditure of money on land alone, and disturbing important business and manufacturing interests. (b) Though the cost of water-supply on

this site would be cheap, sanitation and drainage would be expensive. Much of the area lies in the danger zone as regards health at present, and the site, instead of being naturally healthy or normally healthy would have to be made healthy. Subsoil drainage, river embankment and sewage disposal would be troublesome and expensive items on the site. The natural outfall is near Wazirabad above both the intake of the water works and the present city of Delhi. (c) The site is cut up by the Ridge, the Najafgarh drain, the Eastern Jumna canal, the Grand Trunk Road, and the Delhi-Ambala-Kalka railway. Difficult and expensive diversion and realignment would be entailed. (d) There is a lack of sufficiently good building land near Delhi which could only be met by an extension into more distant and undesirable areas. The physical shortcomings of the riverain and Durbar area site would push the Imperial city out towards the Pithampura plain into a country actually flat and featureless, and with no view or association with Delhi. The surface drainage of the Pithampura plain is extremely poor; the fall is almost negligible, and great difficulty would be experienced in providing satisfactory drainage here. The site is cramped, owing to its peculiar physical condition, and even if, by including some doubtful building land, the city could be built at all in the tract, there would be no suitable area for further expansion, and it would be impossible to imagine the growth of a great city at some future date in such a situation. The site is generally flat and uninteresting, and unless striking artificial water effects are permissible, which, from the present point of view of health seems unlikely, it would lack all features of scenic beauty.

Thus, say the Committee, the indictment against this area is overwhelming, and they feel that it is out of the question for them to advise the Government of India to select this area for the site of the Imperial capital.

It is the site on the eastern slopes of the hills to the south of Delhi that the Committee consider all superior. This has on its fringe the remains of the Delhi of the past, which occupied the immediate vicinity of the river; between the riverain and the hills lies the site that the Committee have selected for the new Imperial city. It is well drained, lies above the contour of 700 feet, and so is free from danger of floods, and has a healthy record. The site is not manworn. The monuments and remains of older Delhis, though adding attraction to the views, are outside the actual site, which is open ground and good wholesome soil for building purposes.

The site is near the present centre of the town of Delhi, and there will be no difficulty in making a fine approach from good points in the old city as well as other notable avenues. The Naraina Plain on the other side of the Ridge, as has been already noted, is approved by the military for the cantonment, and there is ample room for parks, pleasure and exercise grounds of all kinds. Facilities for communication are good. The site contains nothing useful or valuable which would have to disappear, no business centre or manufacturing interests would be disturbed. Incidentally the land which would be acquired for the site is extremely cheap. Among the limited sites available the Committee say that they have no hesitation in advising the Government of India to select this site, and consider the physical, sanitary, æsthetic, and general considerations in its favour overwhelming.

NOTES AND COMMENTS.

THE planning of hospitals, as of any other class of building intended to serve a specific purpose, requires special attention on the part of the architect to detail, it is true, but the architect is too often hampered by the views and whims of the medical men associated with the particular hospital that he has to plan, and there is no universal consensus of opinion amongst the soi-disant hospital experts as to what ought to be done. It looks rather bad, therefore, that the Conference of the British Hospitals should apparently devote its attention to finding fault with

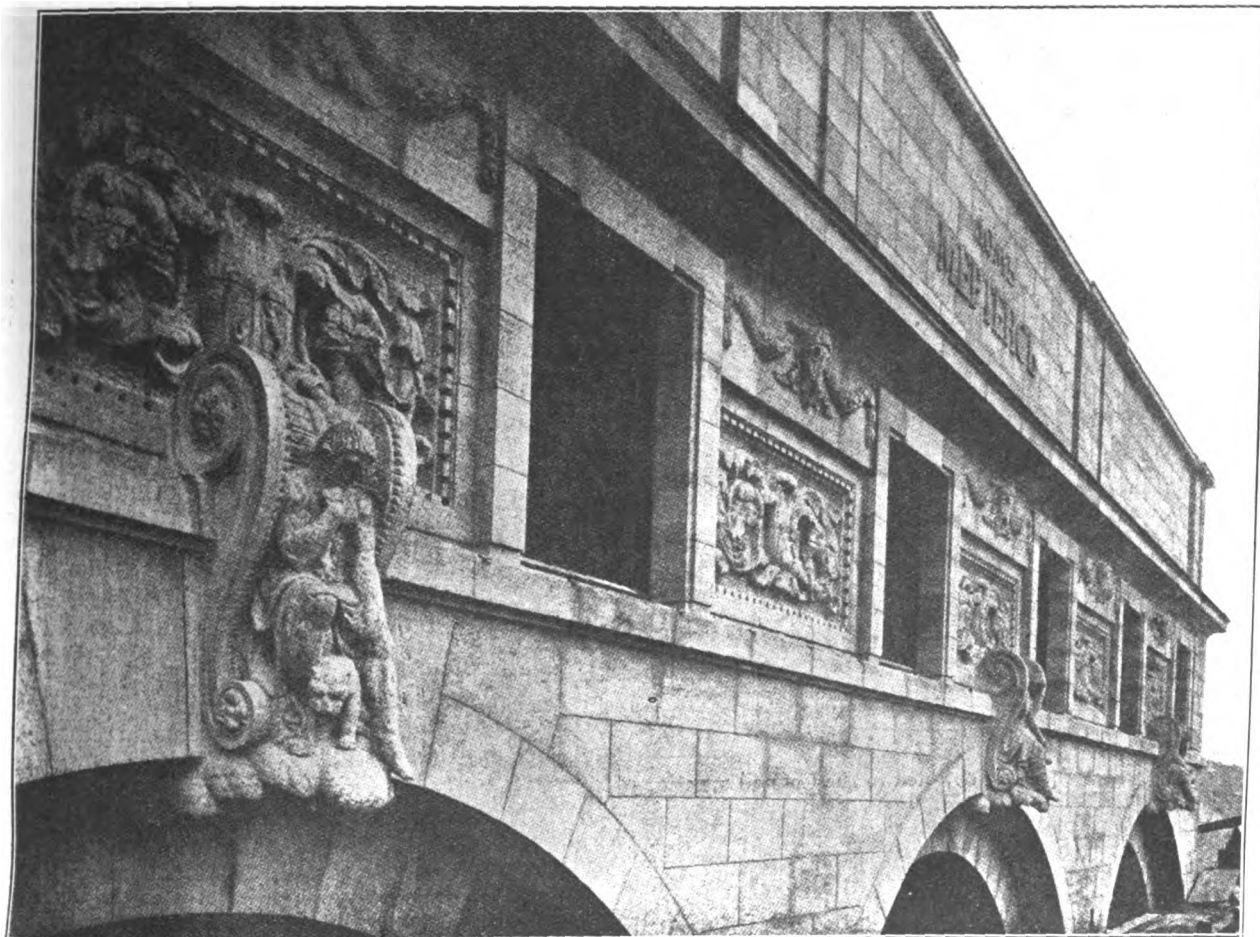
the architects. Mr. Keith D. Young started the ball by pointing out the great length of corridor of St. Thomas' Hospital and its cost in upkeep. But who chooses the site of a hospital, the architect or the managing committee? And if a long, narrow site is provided, how can long corridors be avoided?

Having got an architect to start the ball, other "experts" kept it rolling. Mr. Conrad Thies spoke of the importance of taking the best engineering, electrical, and building expert advice, in addition to that of the architect himself. Visiting recently one of the latest and largest of London hospitals in course of erection, he was astonished to find in a building hardly completed a number of undesirable points which were likely in a few years to give trouble. Another instance of the careful consideration that ought to be expended on the most minute details was borne in upon him during a visit to St. Bartholomew's Hospital. There he found a magnificent casualty receiving room, almost perfectly equipped, without any provision whatever for wheeling patients directly into the casualty room without carrying them up steps. It seemed incredible in a large institution the idea had not occurred to anyone that when the ambulances were wheeled into hospital they should be able to go up slopes, without movement or jerk to the patient, direct into the room where the patient receives treatment.

Sir Henry Burdett said they could not find an architect to carry out in detail a modern hospital without getting such mistakes, and it pointed to the need for association with the architect of an expert hospital administrator. He deprecated interference with building plans after they had been accepted, and said it was lamentable that medical men did not realise the waste of public money that ensued upon their failure to think out their requirements before the plans were made. Mr. W. G. Carnt, of Manchester, was of opinion that the hospital floors were a serious problem. Wood-pulp floors now being put in were exceedingly unsightly.

Sir William Osler declared that the Peter Brigham Hospital at Boston was the realisation of a new ideal in hospitals in English-speaking countries. There they had built only two units, the medical unit and the surgical unit. What impressed one was the simplicity with which it was built and managed. They would have to build hospitals on the lines of individual units, each one of which would be in charge of a single officer, with graded groups of assistants and with laboratories and equipment ready to hand. This generation of hospital management would probably not be asked to carry out this scheme, but there was no doubt that that was the plan on which doctors and workers would in future demand that hospitals should be constructed.

The modern growth of traffic seems to be universal, and Glasgow is feeling the want of a new bridge. The Sub-Committee on Cross-River Communication of Glasgow Corporation have made an important recommendation with reference to the provision of a new bridge at the harbour to alleviate the congestion of traffic in the centre of the city. After considering a report by Mr. Thomas Nisbet, Master of Works, they have agreed to recommend that it be remitted to the Parliamentary Bills Committee of the Corporation to include in the Provisional Order to be promoted this autumn power to construct a fixed bridge across the Clyde, and to insert limits of deviation sufficiently wide to permit of the bridge being erected either on the line of Oswald Street or on the line of Robertson Street. Some time ago Mr. Nisbet inspected different types of bridges at London, the Manchester Ship Canal, Middlesbrough, Barrow-in-Furness, Paris, Rouen, Rotterdam, Amsterdam, Hamburg, Kiel, and Copenhagen. It is on the report of his visit to these places that the present recommendation is made. At the same time the Committee have also decided to recommend that he should be asked to visit America, and report further regarding the question. Mr. Nisbet in his report gives details of the Oswald Street scheme, including the properties which would be affected by the alterations.



DETAIL OF THE HOUSE OF M. MERTENS IN THE NEVSKY PROSPECT, ST. PETERSBURG.—M. LIALEVITCH, Architect.

We are glad to learn that Mr. Nisbet recommends a stone arched bridge, faced with granite, as more economical in the end than one of iron, although probably costing more to erect.

The Ancient Monuments Consolidation and Amendment Bill has been passed by the House of Lords with all reference to ecclesiastical buildings excluded from the measure, which we think is a mistake, in spite of the claim of the Archbishop of Canterbury that the ecclesiastical authorities now took care of church buildings very much better than they used to do. Lord Sheffield rightly reminded the House that in connection with these buildings there were certain chattels, such as chalices, which were sometimes sold, or offered for sale, because the stipend of the living was too small. These things, which were sometimes as interesting historically as the structural details of the building, had in some cases been alienated. Another matter was that cathedrals and collegiate churches were very much in the power of their deans and chapters, but the Select Committee which considered the subject, while anxious to secure the preservation of these buildings, did not desire to raise contentious matter as to the province of the Church and State in these cases, but, as far as possible, to work on the lines of the existing ecclesiastical law. It was felt that in this case also some steps should be taken, and he hoped that they would not overlook it.

Work on the exploration of the Romano-British site at Corstopitum has just been resumed for the year, and the Committee in charge of the investigation appeal for funds to enable them adequately to prosecute researches which have already yielded important results and valuable additions to our knowledge of Romano-British life. The

Committee has uncovered the remains of some of the finest and most interesting buildings yet found in Britain, and, through the public spirit of Captain J. H. Cuthbert, D.S.O., the owner of the site, the best of these buildings will be kept permanently open for inspection. They have been able to add to the national collections in the British Museum two collections of Roman gold coins of surpassing interest and importance; and they have formed the nucleus of a collection of Roman antiquities which no student of such matters can afford to neglect. Corstopitum, as a frontier town, is unique in this country, for though Carlisle (Luguvallum) might equal or even excel it in interest, Carlisle can never be excavated as a whole, and it is possible that, at any rate during the latter part of the Roman period, Corstopitum was the more important place. In material relics, too, its record is interesting and distinguished; in respect of sculpture, pottery, bronzes, and other objects, Corstopitum can, on a fair balance, compare with any other Roman site in Britain, while its buildings afford an excellent opportunity for the study of Roman methods in masonry and engineering.

The excavations at Meroë, the Ethiopian Royal City in the Soudan, under the direction of Professor John Garstang, have produced much information, and the past season's work seems to have established the Hellenistic character of the middle of the three periods into which the history of the Meroitic Kingdom from B.C. 650 to A.D. 700 is divided.

The collection of works of the pre-Raphaelite painters now on view at the Tate Gallery is a welcome relief, and should be an antidote to the peculiar effusions of the Cubists, Futurists, et hoc genus omne.

L.C.C. ARCHITECT'S DEPARTMENT AND SCHOOL BUILDINGS.

THE school building programme of the London County Council was again the subject of criticism by Mr. R. I. Tasker on Tuesday last, when the Council had under consideration a short report submitted by the Education Committee giving particulars of works in progress at various schools.

The Architect's Department of the Council, said Mr. Tasker, was entirely out of hand, and in attempting to design, reorganise, and rebuild something like 120 schools was undertaking far too much. The Council had sites for fifty-three new schools, and the only reason why the work of construction was not put in hand was because the Department dealing with it was hopelessly incompetent. He objected to the system on behalf of the private practising architect, because in the Council's Department there was no scope for the individual, and any attempt to employ an enormous number of officials on a few schools must result in hopeless confusion. It seemed to him absolute folly for the Department to go on year after year, increasing in volume but not in usefulness. The whole system was rotten and indefensible, and the Council's schools could be built for far less money than they were costing.

Mr. John W. Gilbert (Chairman of the Committee) retorted that Mr. Tasker's criticism was totally unfair, and the points he had raised should have been discussed in committee, and not before the full Council. Mr. Tasker had made a covert attack on one of the chief officers of the Council, who, if the matter had been raised in committee, could have been present to defend himself. Mr. Tasker had been begged to come on to the committee and give them the benefit of his advice face to face with the Council's architect, but he had resolutely refused.

Mr. Tasker subsequently objected to the Council sanctioning the payment of £1,000 for overtime to be worked by assistants in the Architect's Department, remarking that the Council could not get the best work out of men engaged in design if they were compelled to do a tremendous amount of overtime. The system which obtained of forming a battalion of men 600 strong to deal with matters which called for creative faculties was entirely wrong.

The committee's recommendations were adopted.

THE MALL IMPROVEMENT.

Replying to a question by Sir Herbert Parsons, Viscount Peel (Chairman of the Improvements Committee) stated that negotiations with regard to the Admiralty Arch improvement were still in progress with representatives of the Government, and he hoped to be in a position to report to the Council before the summer recess.

NEW COUNTY HALL.

Mr. Tasker asked the Chairman of the Establishment Committee the estimated cost of facing the internal areas of the new County Hall with white glazed bricks, and the probable saving which would be effected if the areas were faced with Suffolk bricks.

Mr. Salmon replied that the cost was estimated at £14,000, and the saving if Suffolk bricks were employed would be approximately £12,400. It was proposed to report to the Council on the bricks to be used in the internal courts next week.

COPIES OF OLD MASTERS BY M. JACQUES MAROGER.

LONDON (and, as we think, England also) is not accustomed to exhibitions of works which are seemingly merely copies of the original productions of other artists; but if we are to welcome such, they must be of different calibre to what is now on view at the Dudley Galleries. For M. Maroger's canvases are so obviously students' work that they should not be shown except in the studio. We will, however, criticise them as though they were displayed merely in the private workshop of an aspirant for artistic fame.

M. Maroger exhibits one good quality of a copyist, and that is the power of reproducing the style and mannerisms of the various artists, being most successful in regard to M. Meissonier in his copies of "L'Attente," "Le Poète," and "Les Ordonnances," and nearly achieving success in "1814" and "L'homme à l'épée." His copy of Jordaens' "Portrait de Ruyter" is very clever, and so, too, is "Le duc d'Enghien" after Schilly. For the rest, some few are very passable, and many more fairly passable. Mais ce pauvre M. Fragonard! Qu'est-ce qu'a-t-il fait

d'être traité comme ceci? "Les Baigneuses" is the best copy, but to our mind it out-Fragonards Fragonard; however, we think "La Chemise Enlevée" deserves appreciative notice. For the most part the work is uninspired and lacks the tone which the individual artists knew so well how to impart to their productions.

ILLUSTRATIONS.

PRUDENTIAL ASSURANCE BUILDINGS, MIDDLESBROUGH.

THE offices of the Prudential Assurance Company at Middlesbrough occupy a site in Albert Road. The elevations are in dull glazed terra-cotta (supplied by Mr. A. Whitehead), mainly a cream-white tone relieved in the wings by a change to light brown. The Company's own offices are in the centre, the wings and the upper part of the structure being occupied by various tenants.

Messrs. W. A. King & Sons, of Middlesbrough, were the general contractors, and Mr. Paul Waterhouse, the architect, was assisted in the local superintendence by Messrs. Kitching & Lee.

PRUDENTIAL ASSURANCE BUILDINGS, DONCASTER.

THE offices at Doncaster stand at the angle of Silver Street and Hall Gate. The design actually adopted in execution is not identical with the preliminary scheme here illustrated.

Messrs. C. Sprakes & Son, of Doncaster, are the contractors, and Mr. Alexander Dawson clerk of works. The architect is Mr. Paul Waterhouse.

HOUSE, FURZE HILL, BURGH HEATH.

THIS house has lately been erected. It was built with brick walls covered with rough-cast, the roofs being covered with Major's Italian tiles. A wide piazza on the ground floor and a wide verandah on the first floor are the dominating features of the plan, as will be seen from the illustration. It was designed in a free Greek style. The architect is Mr. R. A. Briggs.

KING EDWARD VII. MEMORIAL HOSPITAL, CROYDON.

AN octagonal plan was decided upon for this building, as it lends itself both to artistic and practical treatment. The exterior wall facings are in yellow Kent stocks, and at the angles there are piers carried up with rounded cornered brindle red bricks as quoins. Circular stone balconies with iron railings project at the first floor level. The whole is surmounted with a heavy cornice running completely round the building, above which is an octagonal mansard roof. The roof is covered with blue slating of rough texture. At the angles in the roof are carried up twisted circular brindle red-brick chimneys of two clustered stacks, with York stone bases and caps. These Elizabethan chimneys are a telling feature in the appearance of the building, and are a typical example of the pleasing results achieved in this kind of work by the Sussex Brick and Estate Co., Ltd., North Street, Horsham, who have specialised in it. The general contractors were Messrs. James Smith & Sons (Norwood), Ltd., 106 New Bond Street, W., and Junction Works, South Norwood, S.E., who carried out the job with great satisfaction to all concerned. Among the sub-contractors were the following: Messrs. Gibbs & Canning, Ltd., Tamworth (terra cotta of entrance porch); the Lift and Hoist Co., Deptford (roller blinds); the Leeds Fireclay Co., Ltd., Norfolk Street, Strand, W.C., and Leeds (sanitary fittings); Messrs. Doulton & Co., Lambeth (sanitary fittings); and Messrs. Merryweather & Sons, 63 Long Acre, W.C. (fire hydrants, &c.). The architect was Mr. Frank Windsor, of Croydon.

FRENCH BALCONY FROM THE PALACE OF VERSAILLES.

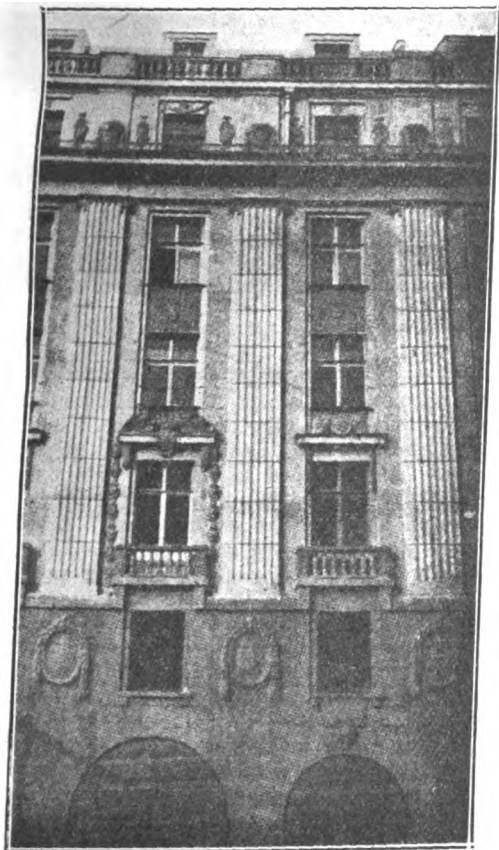
THIS balcony, which is a beautiful example of early eighteenth-century French ironwork, is now in South Kensington Museum. The craftsmanship is wonderful, each petal and leaf being welded on separately to form the flowers. The inside and outside are identical with two exceptions—first, the wreath of roses is omitted, as can be seen by the enlarged detail; second, the bowl of roses is omitted on the inside of the side, plain rose leaves being substituted, forming a background to the roses in front. This drawing, by "Chelt," was awarded a prize in "The Architect" Sketching and Measuring Club.

ARCHITECTURE IN ST. PETERSBURG.—III.

(Concluded from last week.)

FOMIN and Stchuko are the most original and erudite of the St. Petersburg builders. But so far as fertility is concerned, they are far behind their colleague Lidval. This architect, who began as a follower of the modern style, now shows his allegiance to the style of the Italian Renaissance, mixed with some sympathy for its German varieties. One of his latest works, the Hôtel Astoria, is neat and simple in its design, though rather light and playful. As it occupies a very prominent position at a corner of one of the most monumental squares of St. Petersburg, in close proximity to such buildings as St. Isaak's Cathedral, the Riding School, the Palace of the State Council and others, this playfulness of its façade is said to unfavourably contrast with the character of the square. Another feature of this building, and also unfavourably criticised, is the use of a mansard roof, the unfamiliarity of which in St. Petersburg has already been pointed out. Of other creations of Lidval two colossal blocks of mansions are interesting for the treatment of entrances to courts. Instead of a pompous arch joining the wings of the building, which was rather popular quite recently, Lidval introduced vaults supported by rows of columns. This innovation seems to be very effective, as shown particularly in the house of Count Tolstoy, on Troitzkaia Street, where the perspective of two lofty vaults affords an interesting sight. But the ornamentation and details seem rather indifferent and piecemeal. It is illustrated on page 55.

To the same current of architecture, deriving its inspiration from the Italian Renaissance, with Stchuko and Lidval, belong two other young architects—Lialevitch and Peretiat-



[DETAIL OF THE HOTEL ASTORIA.—M. LIDVAL, Architect.]

kovitch. Neither appears to have yet found a style of his own, and even when they introduce into their designs some original ideas they seem to lack the audacity to carry them to their logical conclusions. Thus, for instance, in the Bikhovsky's house by Lialevitch the original feature, the arcade of the second and third floors, is not fully developed. It seems obvious that in this case the arcade should have been built open, or otherwise not introduced at all: as it is it spoils the effect and appears even clumsy. (Very unpleasant are the large windows of the third floor.) The façade of the Bank of Siberia, by Lialevitch and Hirshovitch, appears rather harsh; while on the other hand the house of M. Mertens, of which we can judge only by a few

details, is spoken of with great praise by M. Lukomsky, who mentions as its peculiar feature the arcades running through the whole height of the façade, and the ornamentation with archaic sculpture (the work of Kusnetsov). The latter peculiarity is at any rate quaint. M. Lialevitch is now engaged in constructing two large buildings for the municipality, one of them a market hall.

The works of M. Peretiatkovitch are comparatively few, and so far show him as an architect of considerable culture and great promise. His house for the Bank of Commerce is interesting for its Florentine severity.

The architects whose works have been described up to now, all except one, Fomin, are characterised by an allegiance to the Italian classicism. Fomin leads the group of those who find their ideal in the old St. Petersburg with its prevailing style of the Empire.

To this group also belong the architects who built the house of Mme. Voeikova. Officially, the author of the project is M. Minash, but it is said that many other persons participated in the actual construction of the building. But whoever is the author, the building itself is an unique production. The block of mansions is treated here as one independent whole, which in itself is quite an original idea. But the most striking are the two similar façades. Even judging by photographs one can see that the building possesses quite an exceptional beauty of construction. It is so proportional in its length and height; its pilasters so nobly contrast with the adjoining flat spaces of the wall; its entablature with its beautiful wreath so softly crowns the portico; and lastly, its Empire ornaments are spaced so sparingly and tastefully that the whole produces an exceptionally harmonious effect.

From the architecture of the Empire style we come to a specimen of the other popular style of the old St. Petersburg—the Baroque style. This is a school building named after Peter the Great. It was constructed by M. Dmitriev, and its ornaments were designed according to the drawings of Alexander Benois, the painter. The Baroque of Peter the Great, which characterises the style of the building, is distinguished with some harshness, notwithstanding the abundance of rich and picturesque ornamentation. Otherwise the building is an interesting specimen of this seldom cultivated style. Another specimen is the hospital, also of the name of Peter the Great, which is now being erected outside the city. This hospital, where accommodation for 1,000 patients is to be provided, will comprise several huge buildings disposed around an elliptical space, and will be a small town in itself. The architect is M. Ilhin.

We have attempted to describe the representative productions in the three styles now being revived in St. Petersburg—the Renaissance, the Empire, and the Baroque styles. But the value of this movement consists not so much in what is revived, as how it is revived.

In this latter respect the present generation of St. Petersburg architects shows itself to be fully imbued with the sense of the great mission of architecture as the mistress of all arts. It is not a revival of any particular style that we are now witnessing in Russia, but a revival of architecture itself. And seeing the artistic culture of the present generation of architects, their erudition and deep appreciation of the achievements of the past, one has little doubt that Russia has already entered the epoch of its architectural Renaissance.

N.B.—The name of the leader of the Neo-Byzantine school of architecture, erroneously printed in the first portion of this article, p. 17, as "John," should be read "Ton."

SQUALID LONDON AND THE INDIFFERENT LONDONER.*

By SOMERS CLARKE, F.S.A.

THIS address is to call attention not to some public improvement on a large scale for the advantage of traffic and the dignity of London, but to point out how in small matters opportunities are neglected, how works undertaken many years ago are left unfinished, ragged and raw, how, in consequence, much money is squandered. In the dictionaries squalid means "Having a dirty, mean, poverty-stricken appearance." The Londoner tolerates squalor in an extraordinary way. No capital city in the civilised world can display such a collection of public buildings

* Abstract of a Paper read to the London Society, July 14.

B



PREMISES OF THE BANK OF SIBERIA.—MM. HIRSHOVITCH and LIALEVITCH, Architects.

so blackened and smothered in dirty coal-smoke, which eats and destroys the stonework without and the fabrics and decorations within.

The remarkable thing is that, so far have the smuts entered into our very souls, people may be found who will actually have the effrontery to tell you that a smoke-begrimed building looks "grand."

Furthermore, how unobservant our public usually is. It cares not at all whether a building is finished or not.

Few things are better than practical demonstration. In a short walk from the west side of Kensington Palace to Charing Cross there is much instruction to be gathered; there are many opportunities of observing the slatternly neglect so characteristic not only of the public authorities, but of the people in general.

The west side of Kensington Palace is a most pleasant, old-world piece of almost country scenery. We observe the quiet, unpretending old building of the palace itself, with the green sward and trees; but how changed is the view from the aspect it presented but a short time since! The leafy avenue of Kensington Palace Gardens still runs from north to south, as it has done for many years, but opposite the palace there was, until lately, a grassy meadow with trees. I was urged, some years since, by a wealthy client to approach the office in the care of which this pleasant spot was placed. My client offered an unlimited price. I was to build a suitable house. Happily the offer was absolutely declined. The leafy spot was sacred, I was told, always to be preserved. Now we see a row of houses on this very place. Its value, whether as an open space or as a set-off to the old palace, was altogether pushed aside. Filthy lucre prevailed. An irretrievable mistake has been made, and why? Just because town planning and the decency of things was in these later days a sealed book in that office.

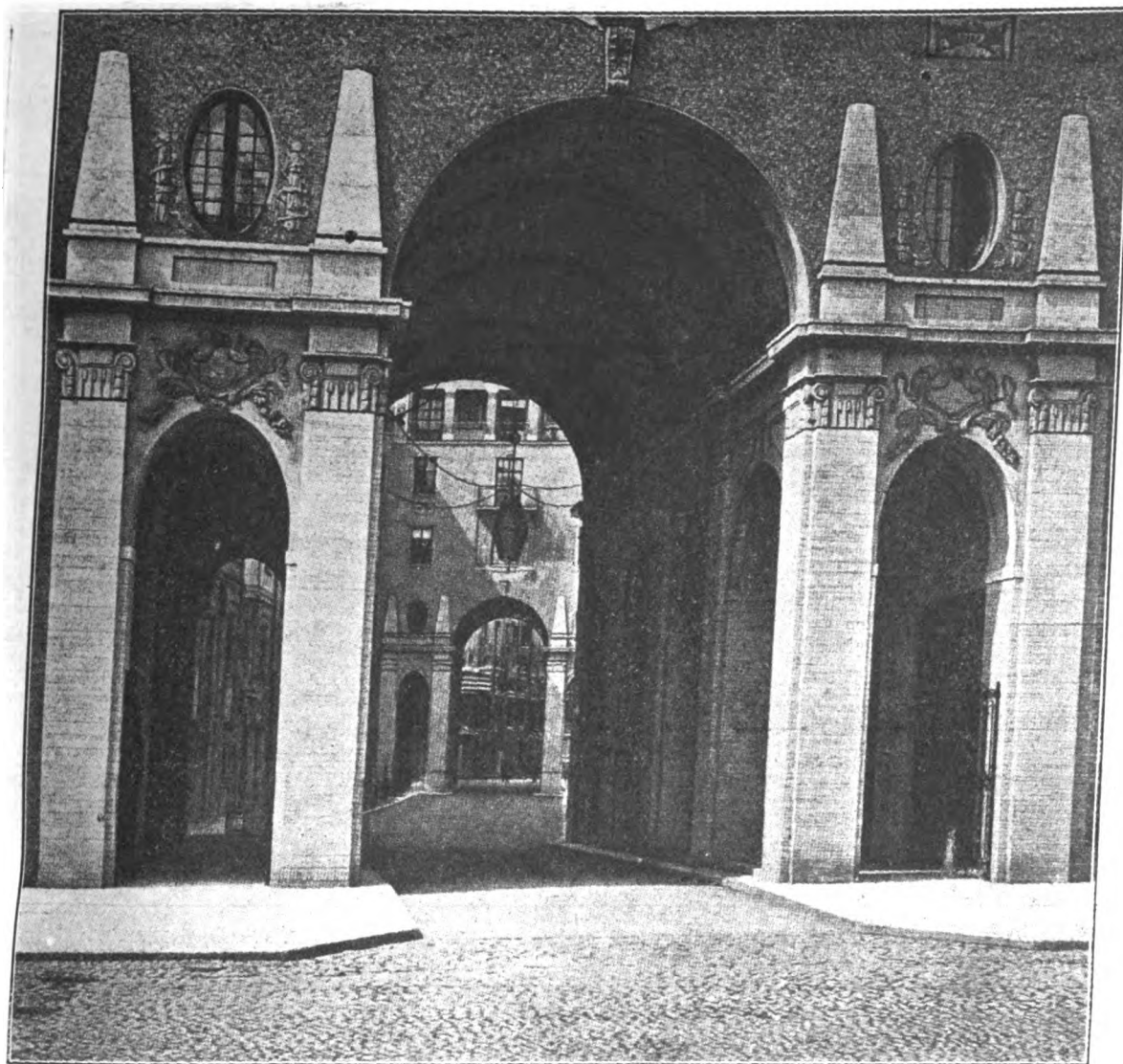
When we look to the south, what a hideous defacement we see in the flank view of the Royal Palace Hotel! Would such a monstrosity have been permitted in any other capital city? A few steps to the east brings us to the Broad Walk. The Broad Walk was not formerly open to the Kensington Road at the southern end. A solid brick wall enclosed this side of the gardens.

The wall was replaced by railings of the very common type. We now see a hole in these railings (one cannot compliment the gap by calling it a gateway), which gives access from the Kensington Road to the avenue, but nothing more mean or shabby could be devised. The most stately avenue in London is approached by a hole in some mean railings!

But a very little consideration of the subject would have enabled the gateway to have at least been placed at right angles to the long axis of the avenue.

At Queen's Gate we may observe how a very little consideration and planning has produced quite a good result. The line of park railings is broken by a set-back. Very decent gate-posts are established. The whole composition faces down the fine roadway, Queen's Gate. Why cannot the south and north ends of the Broad Walk be similarly treated?

As we walk eastward we come to the Albert Memorial. It is at present the fashion to malign this work. Everything in these days must be covered with pillars—"The Orders," as they are called. But we should, if the modern critics had their way, be no better off than we are now. They are pleased to call a place covered with pillars "Classic," but, in fact, it is no more real Classic than is the Albert Memorial real "Gothic." Both are shams. This memorial is, I believe, the *only* monument in London that, being on a grand scale, is really complete. From the railing at the bottom to the crown at the top nothing is



ENTRANCE TO HOUSE OF COUNT TOLSTOY IN THE TROITZKAIA STREET.—M. LIDVAL, Architect.

left unfinished. How different is this memorial in its completeness from, for example, the archway at Constitutional Hill, very commonly called the Wellington Arch. This structure has stood for seventy or eighty years unfinished. Rough stone-work may still be seen behind the coupled columns, intended to be carved into trophies of arms.

But whilst the Albert Memorial is itself complete, let us observe the extraordinary lack of arrangement in the relationship, both of the memorial and of the Albert Hall, to the Kensington Road, which passes between them. Whilst no little trouble was taken to get the Albert Hall, the Albert Memorial, and the avenue to the north of it in alignment, none whatever was taken to bring the existing main road into alignment, nor was the least effort made even to reduce its two sides to a parallel, or so to adjust the park railings that some sense of design and intention should be conveyed to the spectator. The desire to give dignity to the two monuments seems to have been abandoned as soon as arrangements had been made to secure an arch north and south. The principal approach was entirely neglected.

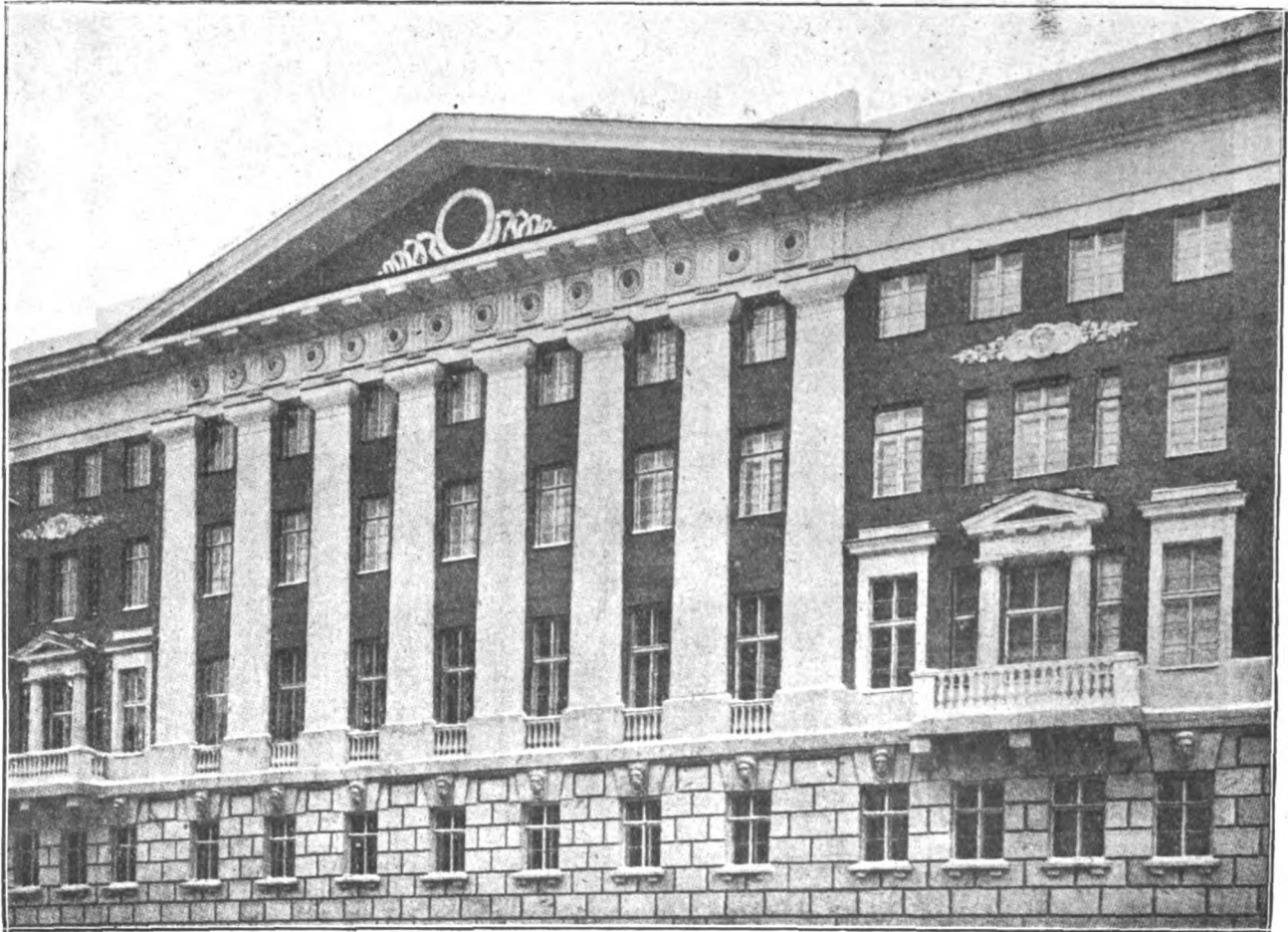
More than forty years have elapsed from the inauguration of the Albert Hall, and yet only last year were the roads round it, and giving access to it, properly made! Even to this day the necessary gateways to control the various exits and entrances have never been supplied. Funny little wooden wickets and primitive five-barred gates are still made use of, their constant movement knocking off the angles of the masonry. Would any private owner put up with such things? Why, then, should the public?

As we walk eastward by the side of Rotten Row the vista is closed by the side view of Apsley House. In this case, in private hands, we see exactly the same toleration of shabby neglect as we have already lamented from the

hands of the public authorities. The top of the house is surrounded by a row of the most hideous ventilators, something of the form of button mushrooms. Furthermore, no façade, especially in London, where the stone-work is so quickly discoloured, is other than ruined by white calico lodging-house roller blinds. The cold, raw white, ending at the bottom in a hard, horizontal line, altogether destroys the lights and shades on the building. The housemaids, too, have a particular joy in pulling down these ugly blinds, all to the same level on a frontispiece. This is carried to the extremest degree on the front of Buckingham Palace, and will ruin the effect of the new façade as it does of the old. Blinds may be seen of a soft colour, "écru," and with sufficient indentation at the bottom edge to take off the ill-effect.

The screen at the entrance of Hyde Park is a very graceful and pleasant composition. Why, then, introduce the odds and ends of a backyard into this most public place? Why deface it with hideous and staring white enamel plates, marked IN and OUT, and still more hideous placards of warning to the motor driver? The notices are necessary, and they must be legible, but they need not be so hideous as to deface the monument to which they are fixed. But that is our way. Spend £15,000 or £20,000, or it may be half a million, and then leave the structure to be neglected and defaced.

Of late years, since enamel plates came into vogue, we have had all our street corners defaced by these hideous dabs of white. Call to mind the hideous advertisement boards placed in front of the Albert Hall, with still more hideous advertisements printed in letters two feet high. There are four of these things on either side of the central entrance, but none of them range with each other. Some are big, some are small, some stick up above their neighbours, but a charming artistic touch has been attempted



HOUSE OF MME. VOEIKOVA, KAMENNOOSTROVSKY PROSPECT.—M. MINASH, Architect.

by some little trimmings along the top. This growth of blatant vulgarity might at least be controlled on a public building, for such the Albert Hall is.

With regard to the accumulation of surface dirt, why is it that if I take a house on lease with a painted exterior, I must, by the term of my lease, repaint it every three years, but if it be of stone it may for ever be neglected? It used to be the case in Paris that most of the public buildings were washed down every few years. We let our stone buildings go on for an unlimited time, and then, in a spasm of despair, attack the unfortunate edifice with steam jets and other terrible engines. But the evil is too great to be thus dealt with. Stafford House underwent the drastic treatment but four or five years since. It already presents a smeary, grimy aspect, though not as black as it once was. After standing some thirty years the Albert Memorial was, at great cost, washed down, cleaned, and brushed up. In about five years' time very much of it, especially of the gilding, looked positively more black, smeary, and woe-begone than it did before, and so it stands to-day.

But to return to Hyde Park Corner. Was ever such a hash of odd corners, buildings here and there and anywhere, to be seen out of England? It presents to us chaos evolved out of order, the reverse of the usual process we hear about. The screen enclosing the gates into Hyde Park was designed by Decimus Burton, and set up in 1828. Opposite to this screen, parallel with it, and with its arch on the same axis as the central arch of the screen Decimus Burton designed and erected the Triumphal Arch, which has been already referred to. Hyde Park Corner was at the time looked upon as the western entrance to London. The main road passed between the screen on the north and the arch on the south, the arch giving access to Buckingham Palace.

Is it reasonable to ask why the arch has never been completed? The original designs exist. What would the poor architect, Decimus Burton, say if he could see his arch where it now is, and surmounted by the lady driving circus horses, which we plainly see is entirely foreign to his intentions, and is equally foreign to the accepted treatment for a group in such a position. The history of this

unhappy arch indicates completely the utter indifference both of the British public and of those in control over such matters. First, the completed design receives the Royal approval, and the arch is built in the place for which it was designed, and where I very well remember it. Second, contrary to the approval thus given, and in defiance of the wishes of the sculptor of it, a huge equestrian statue is hoisted on to the top of the arch. Thirdly, the intruding statue is removed, as the arch was to be taken down and set up again not only out of all relation to its surroundings, but at a level six feet lower down than it should be. The excuse for this rearrangement was that London grows apace, the traffic increases enormously, space was needed for public convenience—which things are very true. So the arch was pulled down because it was stated that it stood at too high a level for the new arrangements, and stowed away round the corner, as we now see it. What may be the total thus squandered who can tell, and wherein are we advantaged thereby?

Whilst we are at Hyde Park Corner I may refer to the equestrian statue of the Duke of Wellington, which presents us with another example of the cheap and indifferent way in which we do things. Boehm, the sculptor, told me himself it had never been his intention that the four figures at the corners of the pedestal should stand, detached as they do, "like mantelpiece ornaments." He had designed to have swags of bronze foliage on the sides of the pedestal, linking the whole thing together, but these were cut out, and the monument defaced for all time. "And then," as he justly asked, "where are the railings?"

To gain the pyramidal effect so much needed to give that look of protection and dignity railings are essential unless the monument be on a vast scale. But for our statues we adopt the smallest scale possible. We set up images, not statues.

We now find ourselves in the Green Park, and make our way towards the fine "lay-out" which gives dignity to the memorial to Queen Victoria. Here we are in the presence of something which has set out to be as complete in its parts as the Albert Memorial, but are induced to ask how many years we are to wait for the figures which are to



CORNER FACADE OF THE HOUSE OF MME. VOELKOVA IN THE KAMENNOOSTBOVSKY PROSPECT.—M. MINASH, Architect.

surmount the fountains and the pedestals which flank the flight of steps. A good many years have now passed by, and there is no sign of them. Then we inquire about the gates. Where are they? The Canada gates, the fine range on the north side, have been for long in position, but why is poor Australia to be left out in the cold? To complete the effect of balance and dignity these gates are particularly essential. It is time the Memorial Committee bestirred itself, and treated the memory of the great Queen with due respect.

At the other end of the Mall we observe just the same neglect. Lumps of stone, intended for carving, are seen projecting from the walls of the Admiralty Arch. There they are, and there, judging by precedent, they will stay, like the similar pieces of rough surface under the portico of the British Museum; like the unfinished top of the Home and Colonial Office; like the Marble Arch, or the arch at Hyde Park Corner.

At St. James's Palace we indeed see several things to make us feel proud. We make for the little gateway which leads into what is known as "The Stable Yard." The uninitiated would certainly suppose that Stafford House must be the Palace. It is of stone, and is on a scale of some dignity. Not at all. A filthy brown brick wall with four stories of mean sash-windows stands in front of the spectator. A little doorway, far inferior to the back door of a tolerable country house, bears upon it the name of the

Lord Chamberlain's office. It is sheltered by a tumble-down wooden portico.

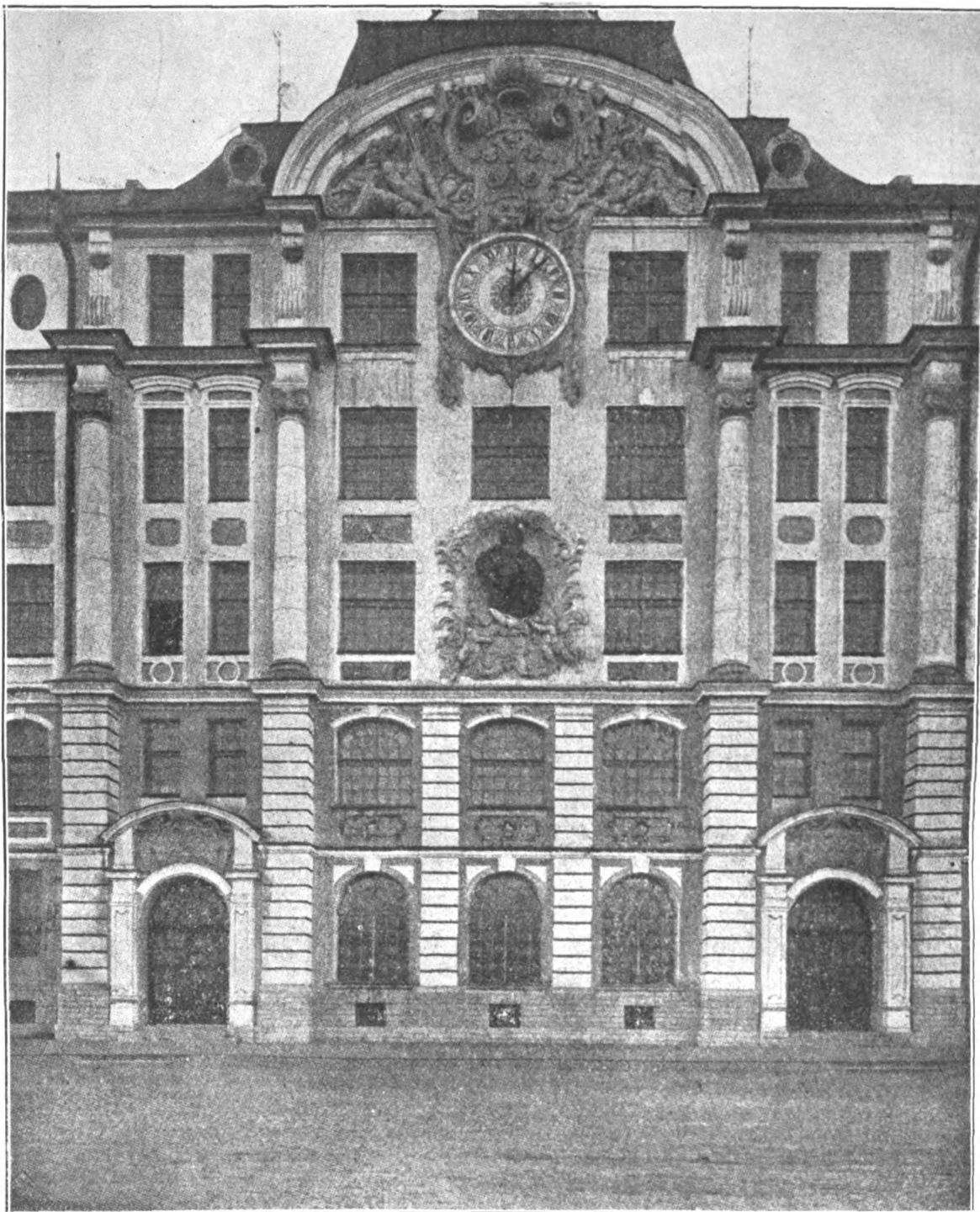
What lies behind this wall? Not some back rooms, not a mere side adjunct to the palace, but "the place we lodge strangers in." This squalid place is York House. A fine name, truly, but on examination a more doleful place could hardly be found in London.

York House is entered from Ambassadors' Court. This also has a fine sound about it, but what a backyard it is. There is not symmetry, there is no picturesque irregularity, there is merely squalor, such as no well-to-do man would tolerate about his country house.

It is difficult to believe, but the President of the French Republic, coming from the beautiful palace of the Elysée, is invited to take up his residence in York House, the place we bury strangers in! The place can hardly be healthy. The old part of the palace is undoubtedly picturesque and worthy of respect, but of the more modern parts we must say "the more recent, the less decent."

As we pass the opening where Waterloo Place opens out on Pall Mall, the place where, looking to our right, we see the Duke of York's Column standing up against the sky, we may find much food for reflection.

With the Athenæum Club on the west, the United Service Club on the east, the general parallelism and uniformity of the lay-out, we might reasonably suppose that those who have the control in these matters would see that



FACADE, PETER THE GREAT SCHOOL.—M. DMITRIEV, Architect.

statues, of which there are several, would be set up in such a relation to each other, both in scale, in design, and in their surroundings, that the "Place" should have an effect duly monumental.

Far be it from these gentlemen to waste their time over such trifles as that. The auctioneer might aptly describe them as a "job lot."

Could any churchyard mason do the thing worse? We neither see nor care, and yet what have not these men, so indifferently commemorated, done for their country and for us?

What is more usual than to find that sculptors are invited to send designs for a statue, but no place for it is assigned? The poor man doesn't know what the light on the aspect will be. Not improbably, at the last moment, the statue is set up far away from the place first suggested. Nothing worthy or adequate can be arrived at this way.

Passing on from this melancholy example of how not to do it, we find ourselves at Charing Cross, a strange medley of things, a place offering many possibilities, many of which have been thrown away. The criminalities more especially centre about the statue of Charles I., by Le

Sueur, with its picturesque pedestal, attributed to Grinling Gibbons.

Some thirty years since, and clearly for no adequate reason, the surrounding railings were swept away. It should be borne in mind that the railings round the pedestal of a statue exposed in a public place are nearly as essential to effect as is the frame to a picture. The pyramidal outline so important to an effect of stability is thus secured. No form of statue on a pedestal needs this adjunct so much as an equestrian group, which, while of considerable bulk as seen from the side, is from the nature of things quite narrow as seen from the front.

The statue of King Charles, as it now appears, is a conspicuous example of the defect, but, as long as it was framed and given its proper extent of base by the railings, used not suggest any deficiency. One fine day it was discovered that there was not room on the island for people to stand in safety. Without further thought the railings were condemned and pulled down. At the same time the order was given to pull down the railings which accompanied Wyatt's statue of George III., in Cockspur Street, a performance absolutely unnecessary, as here space is abundant and the traffic keeps far away.

But a very short time after the railings were so ruthlessly removed from around King Charles I., some new arrangement of islands was made, with an idea of guiding the traffic in the way it should be. Forthwith, two sets of railings were laid out without the least regard to their effect on the surroundings, and there they stand to this day.

The powers which control these matters started to set up some tasteful lamp-posts, prodigious affairs, with three arms carrying enormous spherical lanterns. Each of the huge globes of glass are at least five times bigger than the head of the statue, and the lamp-posts are so placed as to be thoroughly out of composition with all the surroundings. But we need not go far to observe the same hopeless want of taste and want of thought in the setting-up of other lamp-posts.

In front of the National Gallery some tall posts were not long since planted in an uncomely row. We can see very well how the matter was taken in hand. A large-scale map was consulted, and orders given to plant the lamp-posts at intervals of so many feet or yards from one to the other, quite regardless of any public buildings which may line the street. By a very little consideration and adjustment, by moving a lamp-post perhaps three or four yards one way or another, it may be made to stand in some relation of symmetry to the portico or tower of the building before which it stands, but in the British Islands the City fathers do not think of these things.

As I write this, I observe that certain poles, swathed in red, are being planted by the roadside, to carry flags in celebration of the arrival of the French President. Pall Mall is thus adorned, and one of these poles is set up precisely in front of the Guards' Memorial, just the place where it ought not to be. A pole on either side, the Memorial showing between, would be a reasonable and one would have supposed an obvious arrangement, but not so to our people.

ATMOSPHERIC POLLUTION IN EXETER. AND THE ACTION OF COAL SMOKE UPON THE CATHEDRAL.*

By F. SOUTHERDEN, B.Sc., F.I.C.

IN view of the increased attention which is being paid to the purity of town air, and of important investigations on the subject recently made in manufacturing centres, it seemed interesting to ascertain the extent of atmospheric pollution in a comparatively small non-industrial city like Exeter. A series of "sootfall" determinations and partial analyses of accompanying rain-water have accordingly been made during the past few months in different parts of the city; and certain broad facts have already been made clear.

Apparatus consisting of a tall cylinder, in which rested a large funnel (about 9 inches in diameter), was exposed at four stations, so as to collect soot, dust, rain, &c., and the contents of each cylinder was examined at intervals. The suspended matter was separated by filtration, dried, and weighed, whilst the filtered water was reserved for the determination of dissolved solids, sulphate chloride, and ammonia; the dry suspended matter, after weighing, was treated with ether in a Soxhlet extractor, for the extraction of tar (from contained soot), and the residue finally ignited, so as to obtain the weight of mineral matter or ash. The stations selected were: (a) the roof of the University College (central); (b) the roof of the Corporation Electric Power Station (industrial district); (c) Gordon Road (suburban); and (d) the Corporation Reservoir at Marypole Head (open country).

As regards the dissolved matter, although considerable irregularities occur, it is quite clear that the total is least when the volume of rain is at a minimum, but that the concentration of the dissolved solids is then greatest. The purity of the rainwater collected at the reservoir (in open country, above and well outside the city, although less than a mile from its centre) was very noticeably superior to that elsewhere; the proportions of dissolved solids and sulphate were only about half the values at the other stations, but there was no marked difference as regards either the chlorine or ammonia, so that these are presumably derived, in the main, from sources other than coal

smoke. The total suspended matter was least at the reservoir and greatest at the electricity works, whilst the figure for the college (central) station was also distinctly above that for Gordon Road (suburban), the latter being, however, more than five times as great as that for the corresponding period at the reservoir; the sulphate figures follow a like order. The extremely local character of the pollution (both dissolved and suspended) is thus very pronounced. In the case of the central and suburban stations, the weights of suspended and dissolved matter brought down (calculated as tons per square mile per annum) was greater during the period March 15 to May than for December to March 15, although the water collected was in all respects very much purer. This is accounted for, partly, at any rate, by the fact that a much larger proportion of rain fell during the latter period, and it is well known that heavy rain is much less concentrated as regards dissolved matter than light rain.

The following table gives averages for Exeter, as compared with those for Leeds and London:—

Locality	Suspended Matter. Tons per sq. mile per annum.			Dissolved Matter. Tons per sq. mile per annum.		
	Total.	Tar.	Mineral	SO ₂ .	Cl.	NH ₃ .
Exeter—Electricity Works ...	733	7.5	568	27.1	22.4	0.79
College ...	246	7.5	207	33.3	3.8	1.88
Gordon Road ...	202	7.2	145.5	20.3	29.7	2.01
Reservoir ...	35.3	—	24.3	12.5	33.1	1.80
London—E.C. ...	426	—	—	68.7	27.7	48.6
S.W. ...	276	—	—	40.8	33.4	34.6
Sutton, Surrey ...	195	—	—	6.1	14.7	2.3
Leeds—Industrial ...	440	31.2	236	54.0	44.2	1.08
Town ...	243	22.3	121	41.6	21.4	1.11
Residential ...	103	8.4	38.3	26.7	16.8	2.72

The table has a general interest, although the figures are not really comparable, seeing that the observations were made at different times, and doubtless with differences in the methods adopted, but it is clear that atmospheric pollution in Exeter is not of a very different order from that in larger towns.

Effects of Coal Smoke on the Stonework of Exeter Cathedral

Different kinds of stone have been employed at different periods for the external fabric of Exeter Cathedral. For example, the Norman work, such as the towers, choir, and Lady chapel, is of Salcombe stone from a quarry at Salcombe Regis, Devon, which has long since been worked out, but the later portions (nave and west screen) are of soft Beer stone, whilst Portland and Douling stone, and latterly Ketton stone have been used for restorative work. These stones differ much in qualities and texture, but agree essentially in chemical composition; they are all lime-stones, and as such are especially sensitive to the dissolving and disintegrating action of acids. Experiments have shown that the extent to which limestone buildings have taken up the oxy-acids of sulphur present in the atmosphere, as products of the combustion of coal, is very remarkable, the calcium carbonate of the stone becoming converted into calcium sulphate, often to a very large extent. This surface attack of the stone is considered to have a harmful influence, in that calcium sulphate is distinctly soluble in water and, moreover, slowly crystallises and expands in such a way that disintegration is brought about.

The extreme blackness of the lower portions of Exeter Cathedral and the deplorable decay (more particularly of the Beer stone) which has rendered costly restorative work not only desirable, but imperatively necessary, suggested that probably the coal smoke of Exeter has played a not unimportant part in the work of disintegration, more particularly in view of the comparatively large, though very local, pollution of the atmosphere by smoke, already recorded. Experiments were first made to ascertain the cause of blackness. This is chiefly observable on the lower parts of the building, and especially on the north face, but a closer inspection has shown that even the upper parts of the towers, where sheltered from the action of wind and rain, have become equally black, and that the apparently erratic (though highly effective) distribution of clean areas over the otherwise dark surface may in many cases be readily accounted for by obvious local washing or by prevalent wind eddies determined by the rich irregularity of the design; sometimes also it is due to the scaling of the blackened surface layer to be referred to later. The blackening has been ascribed locally to various causes, such as the growth of vegetation, the deposition of soot, and some inherent weathering quality in the stone. Chemical examination has however, definitely settled the point,

* Abstract of a Paper read at the Congress of the Royal Sanitary Institute at Exeter.

having shown that the blackened particles of stone are coated with a thin film of soot, and it has even been possible to extract a small amount of tar from the material.

The establishing of this point led to systematic determinations of sulphate in the stone (which, in its original state, is free from sulphur), in order to get some idea of the extent to which the material had been attacked by the sulphur acids present in the air. The plan adopted was to rasp off successive ($\frac{1}{8}$ - $\frac{1}{4}$ inch) layers with a coarse file and determine the sulphate separately in each, the first layer removed being always of sufficient thickness to contain the whole of the discoloured material. The results are given below:—

		Percentage in successive layers				
		A	B	C	D	E
1. Caen stone from pinnacle on S. side	Insoluble residue	10.79	8.70	8.86	8.88	8.49
	Calcium sulphate	21.31	2.42	0.66	0.41	nil
	Ferric oxide	0.81	...	...	...	0.25
2. Salcombe stone, from top of S. tower (slightly blackened)	Insoluble residue	7.36	6.10	...	...	...
	Calcium sulphate	4.29	nil	...	...	...
3. Salcombe stone (middle level very black)	Insoluble residue	6.49	2.17	2.49	2.88	...
	Calcium sulphate	30.08	8.31	4.33	3.91	...
	Ferric oxide	1.19	...	...	0.60	...
4. Salcombe stone (low level, 10 ft. up: very black)	Insoluble residue	2.68	1.63	1.73	...	...
	Calcium sulphate	12.92	4.05	3.46	...	...
	Ferric oxide	0.44	...	0.28	...	...
5. Black scale (top of S. tower)	Insoluble residue	6.13	...	...	...	...
	Calcium sulphate	41.47	...	...	...	...
6. Black scale (N. face, 4 ft. up)	Insoluble residue	13.23	...	...	...	...
	Calcium sulphate	62.84	...	...	...	...
7. The same (another sample)	Insoluble residue	8.23	...	...	...	...
	Calcium sulphate	64.38	...	...	...	...

The first four samples are of stone in which the black layer formed an integral part of the block, being only removed by rasping, but samples 5 to 7 are of material which had scaled off from the main block, so as to be easily separated in the piece; in these latter instances the whole (about $\frac{1}{8}$ inch in thickness) was powdered and analysed. It will be noticed that in all the samples the percentage of insoluble matter is higher in the external layer than in the interior of the mass; and this would be expected seeing that calcium sulphate is somewhat soluble in water, and hence would be slowly removed by rain. The higher proportion of iron in the outer layer is probably accounted for in the same manner, although it may be due, to some extent, to iron present in the adhering soot. The sulphate in some cases penetrates considerably into the material, the distance increasing with the porosity of the stone, and, of course, with the increasing accumulation in the outer layer. Up to a certain fairly high proportion of sulphate the external layer appears to remain intact, but beyond this the outer layer scales off (see Nos. 5 to 7), owing probably to expansion accompanying slow crystallisation (as has been shown by others). The exact conditions which lead to scaling are possibly not simple, but the extent of sulphate formation seems to be an important factor, and the destructive influence of sulphuric acid is therefore doubly important, for in the more sheltered situations it leads to disintegration by scaling, and in exposed positions calcium sulphate is formed and dissolved away, thus hastening the destruction brought about by more natural agencies, such as frost, wind, and rain.

In view of the fact that the stone replaced in restoration is chiefly the soft Beer stone used in the more modern portions of the fabric, whilst the older work of Salcombe stone remains comparatively sound, it was decided to compare the resistive qualities toward acid fumes of Beer and Salcombe stones with those of the Ketton stone used at the present time. Three similar and typical blocks (3×3×2 inches) were accordingly prepared and placed under a large glass bell, which contained also a jar partially filled with a solution of sulphurous acid. The blocks were symmetrically supported, each in its bedding plane, with the jar centrally below, and after four weeks, during which time the cover was occasionally removed for a few hours and the solution resaturated with sulphur dioxide, the blocks were exposed to the ordinary atmosphere for six days. Then $\frac{1}{8}$ inch was removed from similarly disposed vertical surfaces, the powdered material was oxydised with bromine water (to convert sulphite into sulphate), and the sulphate was determined. The results are given in the table which follows:—

	Percentage		
	Beer.	Salcombe.	Ketton.
Insoluble residue	1.70	2.34	0.39
Calcium sulphate (including sulphite)	10.99	2.25	12.97

The results are striking, but must doubtless be interpreted with caution. Experience has shown the superiority of Salcombe stone over Beer stone and this is fully supported by the above test; but the fact that Ketton stone

is attacked by acid with great ease must be considered in conjunction with its hardness and uniformity, in which respects it is certainly superior even to the Salcombe stone. In practice, the chemical properties of the stone cannot be dealt with apart from its behaviour under mechanical tests, but at the same time the above result must be regarded as significant, and it is intended to apply the method to the comparative examination of other building stones. It is interesting to note that in spite of the very appreciable extent to which the samples were attacked, no change was apparent to the eye, even with the aid of a lens. To the chemist, no limestone can be regarded as an ideal material for building purposes in a smoky town; but the architect has to take a broader view, and in the case under consideration in particular, the choice of a suitable stone is narrowed by the necessity for the new work to harmonise as far as possible with that already standing.

KELVIN MEMORIAL.

On Tuesday, July 15, at 3 P.M., the dedication took place in Westminster Abbey of a window in memory of Lord Kelvin.

The window, which is the result of action taken by engineers in the British Dominions and the United States, has been placed in the north aisle of the nave, in close proximity to the one erected in 1909 by civil engineers to the memory of Sir Benjamin Baker, and has been designed and made by the same artist, Mr. J. N. Comper.

The design is as follows:—

At the head of the window is a cinquefoil containing the arms of Henry V. and his badges of the swan and antelope, as represented on his chantry in the Abbey.

The lights contain two large figures under canopies, both lights being framed with borders, having niches holding sixteen statuettes and thirteen shields relating to them.

In the left-hand light is the figure of King Henry V. in armour (d. 1422); in the right-hand light is that of Abbot William Colchester, vested as in the effigy on his tomb in the Abbey (d. 1421).

Within the canopy above the King is a picture of his Coronation, and above the Abbot a representation of the contemporary story of King Henry V. visiting the Westminster recluse on the night after his father's death. (N.B.—Immediately after his accession to the throne the King energetically recommenced the work of building the nave.)

At the top of the canopy is a representation of the Annunciation, which is the dedication of the Chantry Chapel, and the upper statuettes in the border represent St. George and St. Denys, who also appear in the chantry, and St. Crispin and St. Crispinian, on whose feast Agincourt was won. On either side of the King are the Dukes of Gloucester, Exeter, and Bedford, and Sir Thomas Erpingham. The other statuettes represent Richard Whittington, Lord Mayor of London, who superintended the building of the church on the King's behalf; the Recluse and six other monks—viz., Richard of Cirencester, historian; William of Sudbury, also a writer; John Lakyngheth, treasurer, responsible for much of the Abbey building; Thomas Merkes, who became Bishop of Carlisle; Peter Combe, sacrist; and Richard Harweden, abbot, both connected with building the nave.

In front of the pedestals of the two large figures are tablets held by angels, containing the words:

In Memory of Baron Kelvin of Largs,

Engineer, Natural Philosopher. B. 1824. D. 1907.

And beneath these again are the arms of Lord Kelvin and of Glasgow University.

A special service, with music, was arranged by the Abbey authorities, and Mr. R. Elliott-Cooper, President of the Institution of Civil Engineers, made the formal presentation of the window on behalf of the donors.

MESSRS. JOHN DOUGLAS WEBSTER, architects, Sheffield, are the architects for the new church, St. Clement's, which is to be erected at Newhall, Sheffield, as a memorial to the late Archdeacon Eyre.

MESSRS. WYLLSON & LONG, architects and surveyors, 16 King William Street, E.C., have submitted their plans to the London County Council for the proposed reconstruction of the Tivoli Music Hall, Strand. The new premises will accommodate about 2,050 persons.

THE DEVELOPMENT OF NEW HOUSING AREAS ON TOWN PLANNING LINES.*

By JOHN H. BARLOW, Secretary, Bournville Trust.

I HAVE been invited to deal with this subject because it is thought that the experience of Bournville may prove of service to others. While using that experience, however, I do not intend to limit myself to it.

It may be assumed at the outset that, as an abstract proposition, the need for town planning is universally admitted. However, difference of opinion quickly emerges when it is proposed to bring the principles of town planning into practice. Of all the problems leading to such difference, perhaps none is more prominent than the question as to the maximum number of houses to be allowed per acre. Here again there is little question in theory as to the advantage of open development as contrasted with crowded development, but there appear to be certain very obvious practical difficulties in the way, and reformers are warned that their policy will create new problems as bad as those it is desired to remedy. It is urged that open, or garden city, development is synonymous with costly development, that it will render impossible the erection of small low-rented houses, and will end by creating so-called working-class areas where none but the most highly-paid workmen can afford to live.

Other objections, too, are sometimes heard. For example, it is said:—

That the method involves housing a man at a distance from his work, thereby placing him at a disadvantage.

That many families are wholly unsuited to the conditions of a garden suburb.

That as a rule men do not want gardens, and would not cultivate them if they had them.

Before attempting to deal with the important economic question first stated, a word may perhaps be given to the three points just named.

With regard to the first of them, it should be noted that the movement to the suburbs is already in progress. In London it has long been a truism that the outskirts are growing at the expense of the centre. The same holds good of most large towns. Thus in Birmingham while there is something like a house famine in the outer belt, house property in the more central districts is at a discount. The movement to the suburbs then already exists, the question to be decided is—What kind of suburbs shall be provided for the people to move to?

Passing to the second point, its truth may be freely admitted without creating any valid objection to open development. It is unfortunately true that some families would ruin any property in which they were housed. It is equally true that immense numbers of respectable families are at present housed under most unsatisfactory conditions, that they would eagerly respond if given an opportunity to remove to better surroundings, and would treat the property in a way to prove themselves worthy of the opportunity.

The third point may be treated with equal brevity. It is true some people do not want gardens. For such there will be no lack of gardenless houses for many years to come. The number, however, who desire gardens is much larger than is often supposed. They not only want them but they cultivate them successfully when they get them.

It now remains to consider how far open development is consistent with the provision of cheap houses for workmen. First of all, take the cost of development. As Mr. Raymond Unwin says: "To most people, whether they are interested in the land as owners or builders, or are disinterested inquirers, it seems at first sight so obvious that the more houses you put upon each acre of land the more economical is the use made of the land, and the less will each person have to pay for it, that few have really troubled to test the matter." That this widely-accepted proposition must be challenged Mr. Unwin proceeds to show, and he makes it abundantly clear that as held it is very far indeed from being correct. Let us look at some of the factors that are often lost sight of. Take, for example, a point dealt with by Mr. E. M. Gibbs, in a report communicated to the National Housing and Town Planning Council. He says, "An estate limited to twenty houses per acre will have plots of land double the size of those on an estate with forty houses per acre; and assuming the same demand for houses, it will be leased and built upon in half the time. An estate limited to ten houses per acre will have plots four times the size of an estate with forty houses per acre, and will be developed in one quarter the time. The result will be that the owner can avoid the waste



HANGING CORNER CABINET IN MAHOGANY.

By MARK ROGERS, R.B.S.

Inscription from Ecclesiastes, 1, iii.: "What profit hath a man of all his labour which he taketh under the sun?"

of one-half or of three-quarters of the compound interest on the present value of the estate and on the expenditure on road construction; and in consequence he can afford to grant leases at proportionately lower prices per yard." This proposition Mr. Gibbs proceeds to establish by a series of comparative statements, and sums up his paper with the words, "From the above considerations, I conclude that the limitation of the number of houses to the acre will enable the occupier to have a larger plot of land with more open and healthy surroundings, at comparatively little extra cost; and that the owner will not suffer consequent loss except in estates of small size, or under exceptional conditions."

A second consideration suggested by the foregoing relates also to the cost of the increased area of land required for open as compared with close development. If the increased area were all charged at the same price as the less area required for close building, the result, while doubtless very satisfactory to the land owner, would be less so for the builder. Would this, however, be the case? I quote again from Mr. Unwin: "There seems no reason why the land should be sold at the same price, no justification for the garden city method of development conferring this enormous increased increment value upon the owner. We have seen that increment is due to the increased value of the land for building purposes, and it would seem more natural that it

* Abstract of a Paper read at the Royal Sanitary Institute Congress, Exeter, before the Municipal Representatives' Section.

should be estimated rather in relation to the amount of building than in relation to the size of the garden attached to the building; and it is obvious that the owner of the land could afford, without loss to himself, to estimate his increment at so much per house instead of so much per acre, and where larger gardens are provided, let or sell the land at a reduced rate sufficient to recoup him first, for the loss of agricultural land, secondly, for the amount of increment due per house." Illustrations are given of how this would work, and Mr. Unwin concludes, "that there is no economic difficulty in providing for the development of land on garden city principles, but that for practically the same cost it is possible, if the owners of land will accept the same total return in increment, to give every house a garden, which, even from the point of view of the value of its produce, will be worth vastly more than the 1*d.* or 2*d.* per week that it may sometimes cost."

The last sentence introduces a further point in the discussion, viz., the value of the garden. I do not now speak of its value for health or recreative purposes, or of its educative effect on the character and in quickening the æsthetic sensibilities. These influences are profound and indisputable. I refer to the economic value of a garden in providing fruit and vegetables for the tenant. Tests made at Bournville indicate that the net value of the average yield per garden per week throughout the year is 2*s.* It may be fairly claimed that the garden ought to be worth considerably more than any additional rent charge it may involve.

One other point remains to be mentioned, that of the saving in the cost of road construction which is possible under town planning conditions. Before the passing of the Housing and Town Planning Act, 1909, there was very little elasticity in the by-law requirements. Under the Act it will be possible to regulate the construction of the roads, and the consequent expenditure upon them, in accordance with the traffic they will have to carry. Further, with close development there is a considerable and unavoidable loss of frontage at the numerous street junctions, which is largely avoided by open building.

As a matter of fact, with land costing £150 per acre, twenty houses per acre can be reduced to twelve for an increase in ground rent of less than one penny per house per week.

From what has been said it is fairly clear that the current idea as to the excessive cost of open development is subject to very important qualifications. It is not suggested that all the considerations named are in active operation at present, or that their force will make itself felt immediately. But these forces cannot be neglected, and will gradually and inevitably bring about a readjustment in the interests of good housing and town planning. That this may even be a fairly rapid process seems probable when it is remembered that it is less profitable now than formerly to keep undeveloped land out of the market. Further, it must be plainly recognised that, whatever may have been done in the past, the time has come when the public conscience demands that the old abuse of overcrowded sites must cease, and must be replaced by a better system, no matter what the cost may be.

The next aspect of the subject is the character and cost of the houses. At Bournville, which has the honour and the disadvantage of being a pioneer in providing garden city conditions for working men, many types of houses have been tried. Among housing reformers there is a prevalent opinion that to provide a small cottage with a parlour is to waste space. Many hard things are said of it. A great deal of this cannot be denied, but after all a man, and this is specially true of his wife, prefers to live in the kind of house which he likes, not in the kind which someone else tells him he ought to like. Now, rightly or wrongly, there is a demand for a parlour, and this has been recognised in houses built at Bournville.

Again, it has been urged that cooking ought to be done in some other than the living room, say, in a scullery, the living room being fitted with only a parlour grate. This admirable theory, however, makes shipwreck on the impossibility of keeping two fires going, one to warm the living room, the other for cooking in the scullery. Indeed, in one case, probably not an isolated one, the family, a large one by the way, lived in the small scullery, leaving the spacious front room unoccupied except on state occasions.

The following are some of the types of houses in Bournville. The smallest are one-storey cottages containing living room, scullery, one bedroom, and the usual conveniences. These are let to single women, or to old-age pension couples, and are in great demand. It has also been thought desir-

able to build a certain proportion of cottages with two bedrooms. There are always some families for whom such accommodation is all that is needed, and if care is exercised to prevent the cottages being occupied by more than the recognised number no abuse arises. For the ordinary family house, however, a minimum of three bedrooms is most desirable. In Bournville the most popular house of this type contains living room, scullery, with cabinet or table bath, small parlour, three bedrooms, and of course the usual conveniences. Larger houses with bathrooms are also available. In giving these particulars it is not forgotten that custom varies, and that different districts have different preferences in regard to house accommodation. Such preferences must of course be recognised, and the above instances are given with this reservation in mind. Some information as to costs will now be of interest.

Bournville Cottages.

No. 1.

Living room	13 ft. by 12 ft. 6 in.
Scullery	9 ft. by 7 ft., with cabinet bath, sink, and furnace.
First bedroom	13 ft. by 12 ft. 6 in., with linen cupboard.
Second bedroom	16 ft. 2½ in. by 7 ft.
W.C. and coal shed.	

Cost, £171.

No. 2.

Parlour	12 ft. by 9 ft. 9 in.
Living room	12 ft. 6 in. by 12 ft., with cabinet bath.
Scullery	6 ft. by 4 ft. 7½ in., with sink and furnace.
First bedroom	12 ft. 10½ in. by 12 ft.
Second bedroom	12 ft. by 10 ft. 4½ in.
Third bedroom	9 ft. 4½ in. by 7 ft.
Larder, coal shed, w.c.	

Cost, £220.

These figures include cost of gates and hedges, but not cost of laying out gardens. A small outlay in respect of this will be well repaid.

It now remains to consider at what rent such houses can be let. First as to the charge for land. In view of the considerations adduced earlier in the paper, and the experience of Bournville and other places, I suggest that we assume a capital cost of £450 per acre for land including development, and that a limit of twelve houses per gross acre is imposed. This means a capital charge of £37 10*s.* per house, or, taken at 4 per cent., an annual ground rent of £1 10*s.* per house, for a plot of say 350 square yards. Other charges to be met are repairs and renovation, management, insurance, and voids. Taking the two types described the rents work out as follows:—

No. 1.		£	s.	d.
Cost—House		171	0	0
Land, roads, sewers, &c.		37	10	0
		208	10	0
Rent—Repairs and renovations		1	5	8
Management, voids, insurance, &c. ..		0	17	1
Sinking fund at 3½ per cent. compound interest to replace house in 60 years		0	17	5
		3	0	2
Interest on £208 10 <i>s.</i> at 4 per cent. ..		8	6	10
		11	7	0*

* Say, 4*s.* 4*d.* per week

No. 2.

Cost—House	220	0	0
Land, roads, sewers, &c.	37	10	0
	257	10	0
Rent—Repairs and renovations	1	13	0
Management, voids, insurance, &c. ..	1	2	0
Sinking fund at 3½ per cent. compound interest to replace house in 60 years	1	2	4
	3	17	4
Interest on £257 10 <i>s.</i> at 4 per cent. ..	10	6	0
	14	3	4*

* Say, 5*s.* 5*d.* per week.

Rates are additional. In many districts both classes of house would come within the "compounding" limit.

Some figures may now be added from Letchworth:—

1. Large living room, scullery, and two bedrooms, let at from 4s. to 4s. 9d. per week.
2. Living room, scullery and three bedrooms, let at from 3s. 6d. to 5s. 3d. per week.
3. Large living room, scullery, bath, and three bedrooms, let at from 4s. 9d. to 5s. per week.

NOTES ON BOOKS.

"The Cathedrals of England and Wales." By Francis Bond, M.A., Hon. A.R.I.B.A. Fourth Edition. (London: B. T. Batsford. 7s. 6d. net.)

It is nearly fifteen years since Mr. Bond first brought out his "Cathedrals of England and Wales." That two subsequent editions were quickly called for is proof of the acceptance of the work. But the author was apparently not satisfied, for he has now superseded them by a fourth, which has been re-illustrated and, in many places, rewritten. Moreover, the work has a new publisher in Mr. B. T. Batsford, than whom there could be no better. In his preface, Mr. Bond emphasises two special improvements in this latest edition, one of which is important, as it marks the passing of a time-honoured convention. The previous editions had the rather serious omission of all ground plans—this shortcoming has now been rectified by plans drawn to a uniform scale of 100 ft. to the inch. The second change is best given in Mr. Bond's own words: "In conformity with Mr. Rickman's nomenclature, the attempt was made to thrust the history of every cathedral into his Procustean framework of Norman, Early English, Decorated, and Perpendicular periods. The result was disastrous. . . . In some cathedrals there are less than four building periods; in most cases there are seven, eight, or even more. In this volume the actual building periods are treated separately, and no attempt is made to cram them into imaginary compartments." All good archaeologists have become reconciled to abandoning these picturesque labels, though many adopt with a sigh the more scientific phraseology. Mr. Bond confesses also to have thrown overboard many of his first conclusions as a result of subsequent continuous and comparative study of the English churches in general.

A great number of nineteenth century authors, to go no further back, have grouped into one, two, or three volumes the English and Welsh cathedrals. The subject might consequently be thought to be somewhat exhausted. But Mr. Bond has handled it in such a fresh manner that his book is a most valuable addition to the others. Every page shows the mind of the scientific enthusiast, who regards the cathedrals as stones and mortar and as problems in construction, rather than as by-products of ecclesiastical activity. The reader or, better, visitor, must follow his guide with the expectation of being instructed instead of being merely mildly interested. Most books finish off one part of a cathedral, say the nave, before mentioning another, say the transepts. Mr. Bond adopts the biographical method, and shows where and why work was carried out in successive periods in each building; he lays stress on the fact of practical rather than æsthetic considerations being at the root of Gothic evolution. A minimum of attention is paid to the abundant personal interest in the history of all cathedrals. It is as if Mr. Bond despised such an obvious means of attracting the attention. In writing of St. Paul's, for instance, he gives a critical appreciation, not a history of the fabric.

The book is written with a technical mastery of its intricate subject. Mr. Bond is a specialist in Gothic who can write simply enough for anyone to understand if they follow him attentively. The 200 photographic illustrations have been as carefully chosen as the text has been carefully written.

"Geometry of Building Construction." By George Thompson. (London: George Routledge & Sons, Ltd. 1s. 6d. net.)

Mr. G. UDNY YULE is responsible for editing a series of educational works known as "Broadway Text-Books of Technology," the third of the series being Mr. Thompson's "Geometry of Building Construction." We may quote with advantage the opening paragraph of Professor Reilly's introduction: "The Board of Education in recent years has permitted teachers in building construction a far greater latitude in their methods of work than was formerly the case. Where there have existed teachers

with practical knowledge of building and the power to impart that knowledge, the results have been highly satisfactory; new vigour has been infused into the work, and theory has once more been related to and tested by actual experience. This is what has happened in the branch technical schools in Liverpool. A group of teachers, combining enthusiasm with practical knowledge of building conditions, have gradually evolved new courses of study and demonstrated the success of their methods. These teachers have now been persuaded to bring such portion of their teaching as can be reduced to text-book form within such limits, and this series of handbooks is the result."

This somewhat lengthy extract will prove elucidatory, and it may be supplemented by a remark of the author's: "It is intended that the book shall provide a session's work for students engaged in the building trades who attend a geometry and calculation class on one night a week, and classes in construction and the science of building materials on the other two nights."

In a succession of five chapters the author deals with scales and proportion; angles, triangles, and rectilinear figures; the circle and its applications; orthographic projection; and the ellipse in construction.

Speaking generally, the work will doubtless be welcomed by students for its combination of theory and practice; or, preferably worded, for its elucidation of principles in the light of practice. In some instances we note a lack of perspicacity, as in the evolved formulæ for representative fractions. It is, too, a great mistake in reproducing scales to show them either smaller or greater than what they profess to be. In this respect figs. 2, 4, 5, and others are wrong.

And, further, when desirous of equi-dividing a space, it is not necessary to have one-eighth of an inch divisions for the purpose; any equally divided rule, placed so as to enclose the required number of divisions, will be just as efficient. Mr. Thompson remarks on page 27: "Draw a right-angled triangle, and for convenience make its sides 3 inches, 4 inches, and 5 inches." We would point out that if the sides confining the right angle are severally made 3-inch and 4-inch, or if one side is made 3-inch or 4-inch and the hypothenuse is made 5-inch, the third follows of necessity.

The advice given to a student to test by experiment the ratios of π and d is of the greatest value; and the way that the author applies the efficacy of acquaintanceship with these values for practical purposes is worthy of careful study. We notice a few typal errors, one of which occurs on page 84, where the equation for area of sector should read $\frac{\theta \times \pi r^2}{360}$ instead of merely π .

The chapter on orthographic projection should be carefully digested by students, and the numerous examples at the end of each chapter should be worked out.

"An Analysis of the Regulations Governing the Manufacture of Pottery in the British Isles." Compiled by William Burton, M.A. (Hon. Vict.), F.C.S. (London: The Pottery Gazette, Messrs Scott, Greenwood & Son. 1s. 6d. and 1s. net.)

MR. BURTON remarks in his Preface that "the object of this Analysis of the Regulations now governing the manufacture of Pottery in the British Isles is to place in the hands of Manufacturers, Managers, Foremen and Workpeople a digest which sets forth . . . the Regulations devised for the better protection of the health of all pottery workers, together with such explanations, hints and advice as seem appropriate." We think that Mr. Burton deserves commendation for the labour he has undertaken, and no amount of repetition of regulations seems to have proved sufficiently tedious to stand in the way of his provision of as much illumination and elucidation as should be necessary to satisfy his conscientious requirements, self-imposed as they were.

The careful analysis is followed by the complete statutory Rules and Orders (1913) issued under the most recent Factory and Workshop Act—that of 1901. It will be some evidence of the thoroughness of his labours if we point out that the Regulations, which occupy twenty-three pages of the text, are discussed by Mr. Burton in fifty-four pages. It is interesting to note the following, which is often so potent a factor in nullifying the effect of well-considered rules: "No regulations, however admirable in themselves, can prevent a careless or slovenly worker from being a source of injury to himself and often to his fellow-workers." (The italics are ours.)

MODERN EUROPEAN ARCHITECTURE.
ITALY.

HOTEL SAVOJA, FLORENCE.—Signor VINCENZO MICHELI, Architect.

[From *La Construction Moderna*.]

"Natural Rocks, Asphalts, and Bitumens." By Arthur Danby. (London: Constable & Co., Ltd. 8s. 6d. net.) In a small 8vo. volume, engaging considerably over two hundred pages, Mr. Danby enters into his subject—namely, the qualities and uses of bitumens. After a preliminary canter of five pages as to the misleading definitions employed by numerous writers, the author devotes one page to a differentiation between bitumen, pitch, and asphalt; but he admits this to be a somewhat arbitrary performance. Nor are we even now sure that his definitions will be any too clear, except in the case of asphalt.

The range of Mr. Danby's subject is a wide one, touching as it does geology, physical structure, history ancient and modern, sources of supply, extraction, preparation, tests, analyses and practical application. We could have wished that the commercial value of the book had been sustained by a better literary style of writing; unfortunately the sentences are too often involved—one might almost say viscous—and rarely is there an infinitive that is not split, as though it were itself rock asphalt. Hints here and there to be found in the book will prove of value to architects, such as the desirability of specifying the particular rock asphalt to be used, in place of leaving room for the contractor to use an alternative.

The table of rock asphalt imports on page 33 is not very convincing respecting the preponderating use of German products in the United Kingdom, as it shows therein the actual decrease from Germany and the great increase from France and Italy in 1911 as compared with 1910.

It is pleasant to learn that, despite the increasing use of this material, there are supplies for some centuries to come.

We consider the most interesting chapters are (a) the history and ancient use and (b) the carrying out of rock asphalt mastic work, Mr. H. W. Brant, of Newcastle, having, as we are told, almost entirely written the latter. This chapter will certainly appeal to architects.

It is perhaps rather amusing that the author should

refer his readers (on page 221) to a work which he frankly states that he has not yet produced.

Perhaps, in the event of a second edition being required, Mr. Danby will devote some attention to compressing his material and to amending literary defects. But that the book will prove acceptable to a class of readers in its present guise we have very little doubt, and we consider that the author deserves praise for engaging upon a subject that can appeal but to a very limited public.

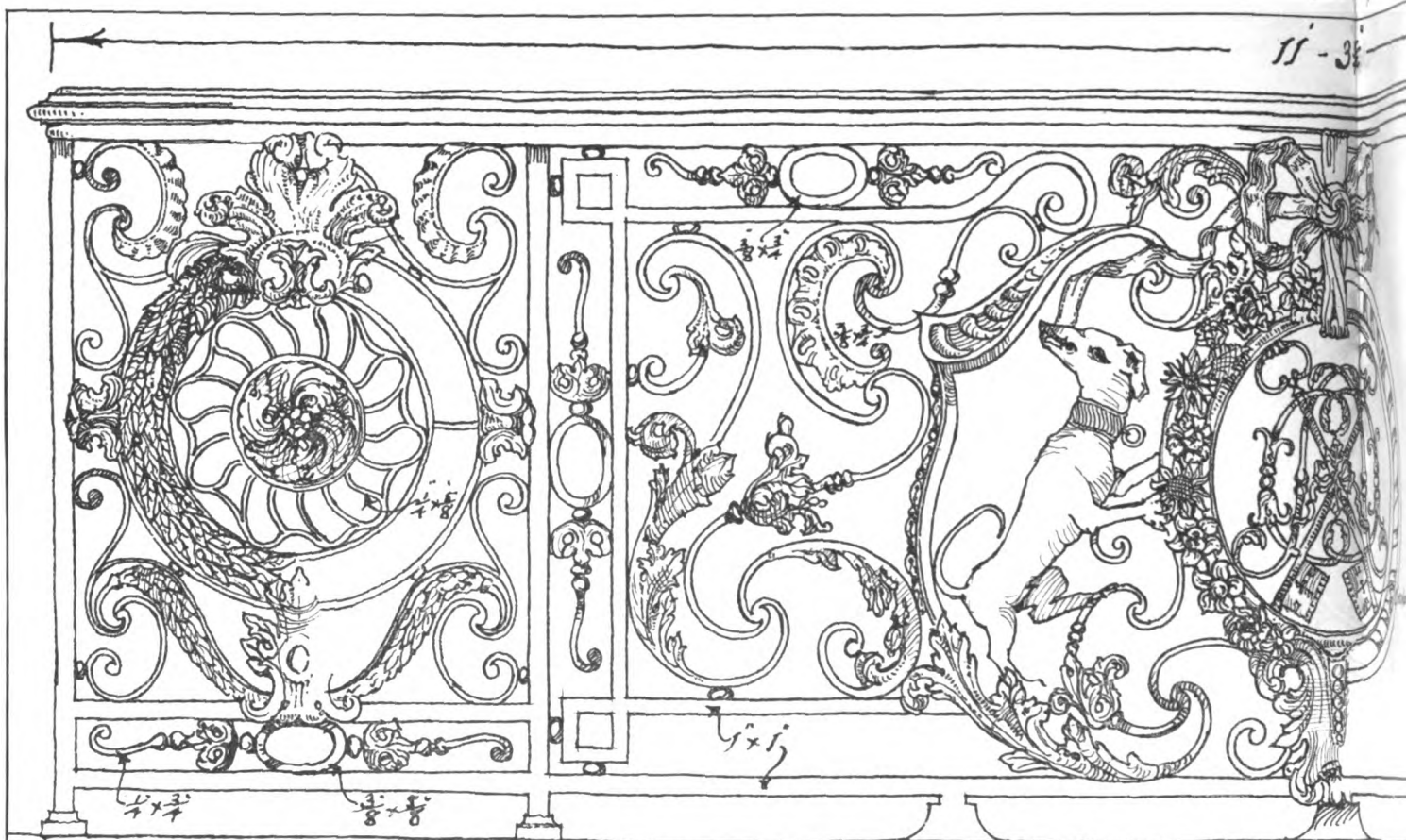
ST. MARY'S CHURCH, BEVERLEY.

THE noble church of St. Mary the Virgin is undoubtedly one of the finest parish churches in the country. Examples of every style of architecture from Norman to late Perpendicular are to be seen, but all the work which now exists of periods previous to the commencement of the fourteenth century is of a very fragmentary nature; the greater part of the present church having been erected in the fourteenth and fifteenth centuries. The south porch is mainly early Perpendicular work of very fine design, with a richly carved doorway and fine proportioned windows to the north and south elevations. The vaulting springs from slender shafts, and is of an interesting character.

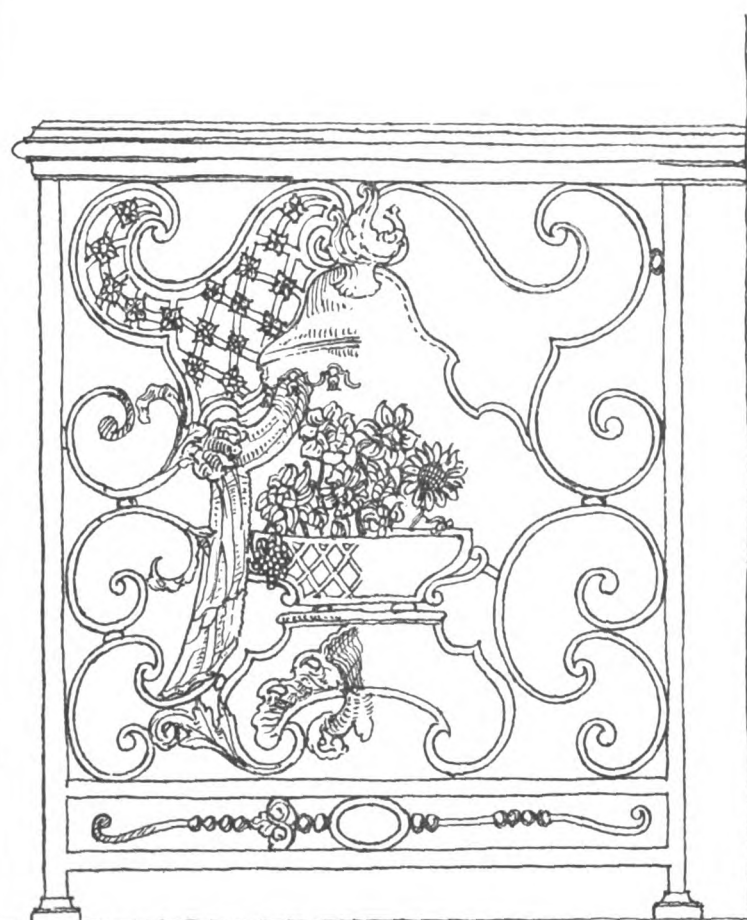
Our illustration on the opposite page is from a prize drawing submitted in "The Architect" Sketching Club competition by "Alpha," who has since been awarded our Travelling Studentship as having sent in the best work during the months of July 1912 to June 1913.

MR. HAROLD BRAKSPEAR, F.S.A., of Corsham, architect for repairs now being carried on to the west end of Pershore Abbey Church, recently examined the condition of the vaulting of the church east of the tower. Both the vaulting and the roof above were found to require extensive alterations and repairs to render the building secure. Meanwhile the church is closed.





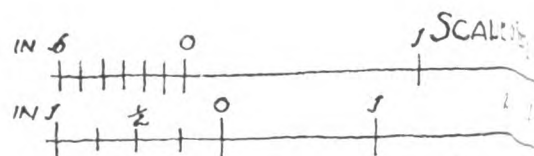
FRONT ELEVATION



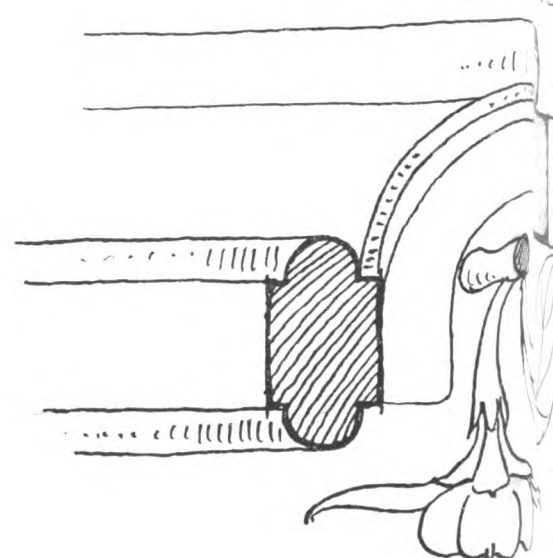
SIDE ELEVATION

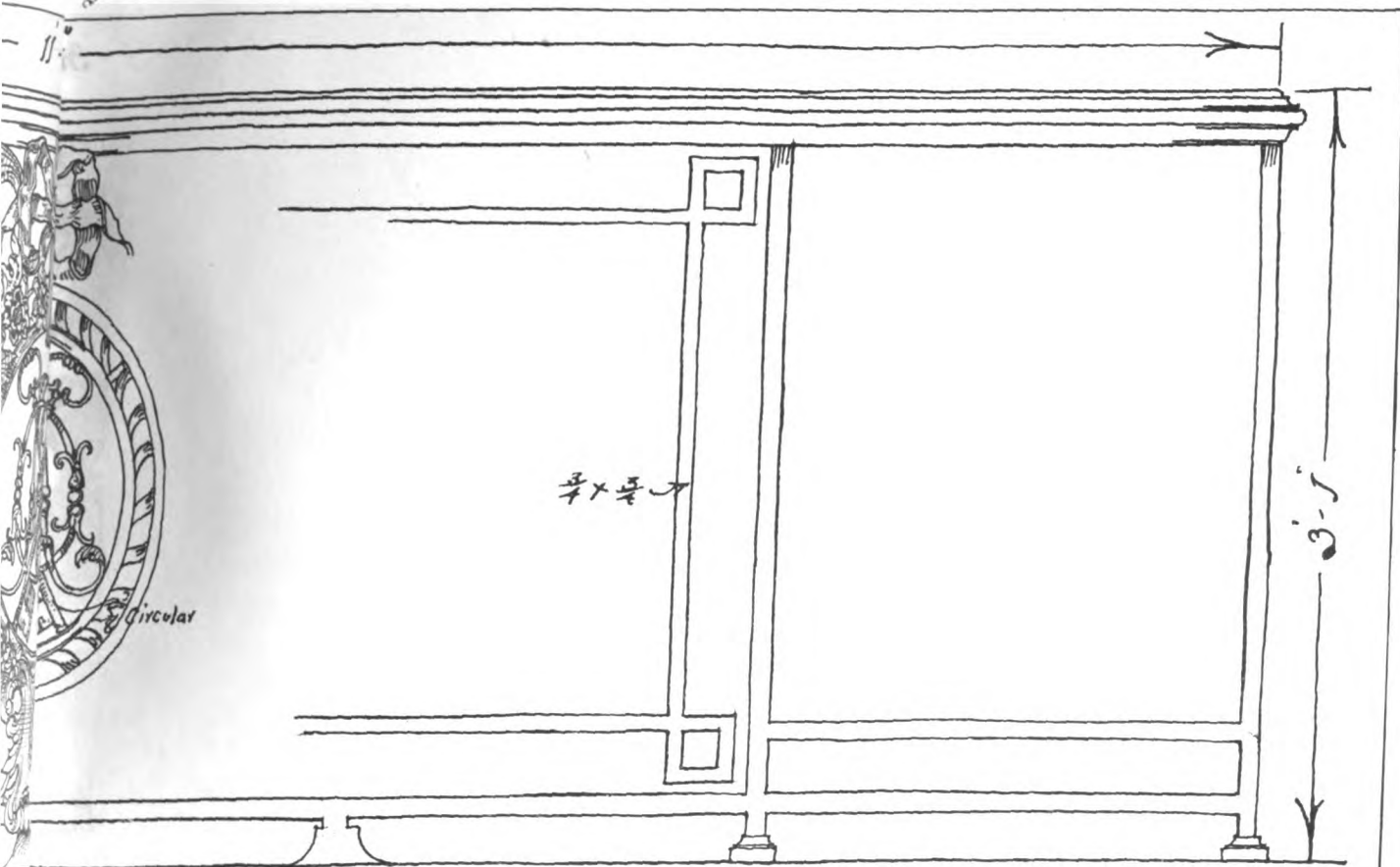
W.I. BALCONY

NOW IN S. KENSINGTON

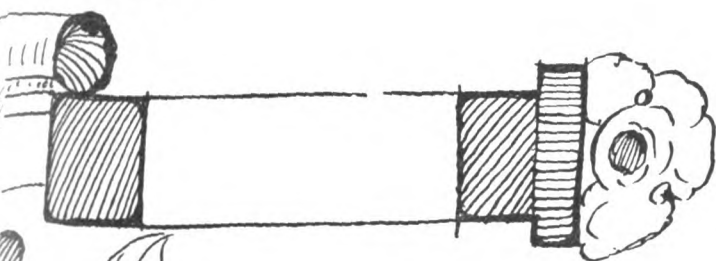
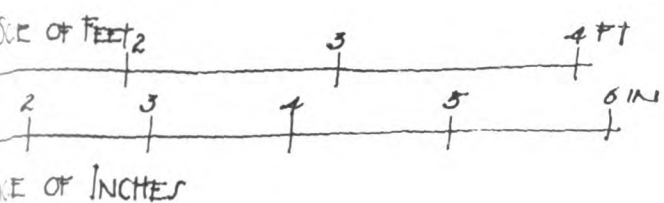


SCALE

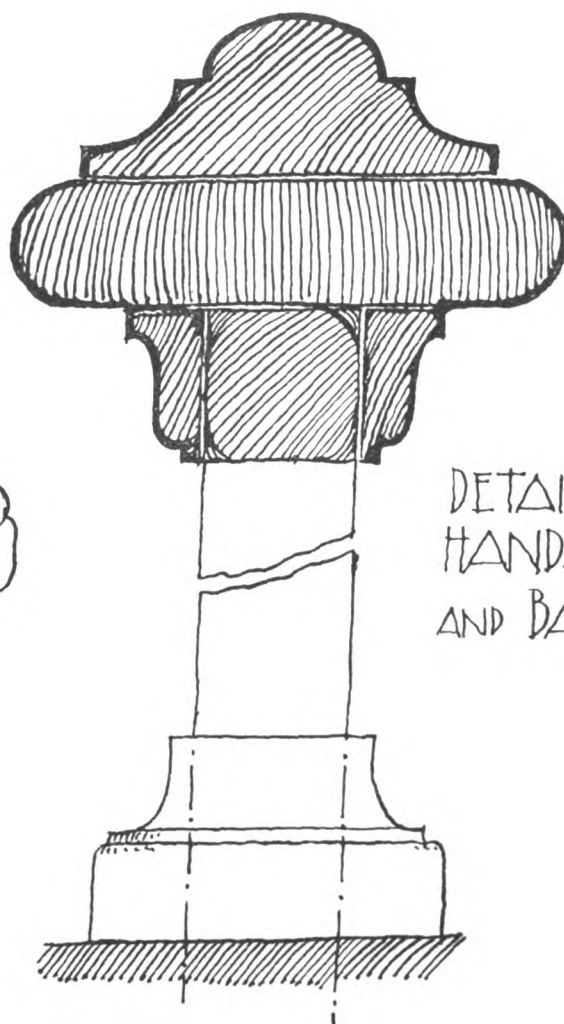




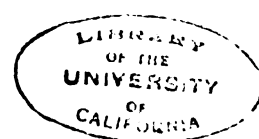
FROM VERSAILLES
MUSEUM.



DETAIL OF
WREATH.



DETAIL OF
HANDRAIL
AND BASE.



HOUSE AT FURZE HILL, BURGESS HEATH
SURREY. R. A. Briggs and Browning Architects.

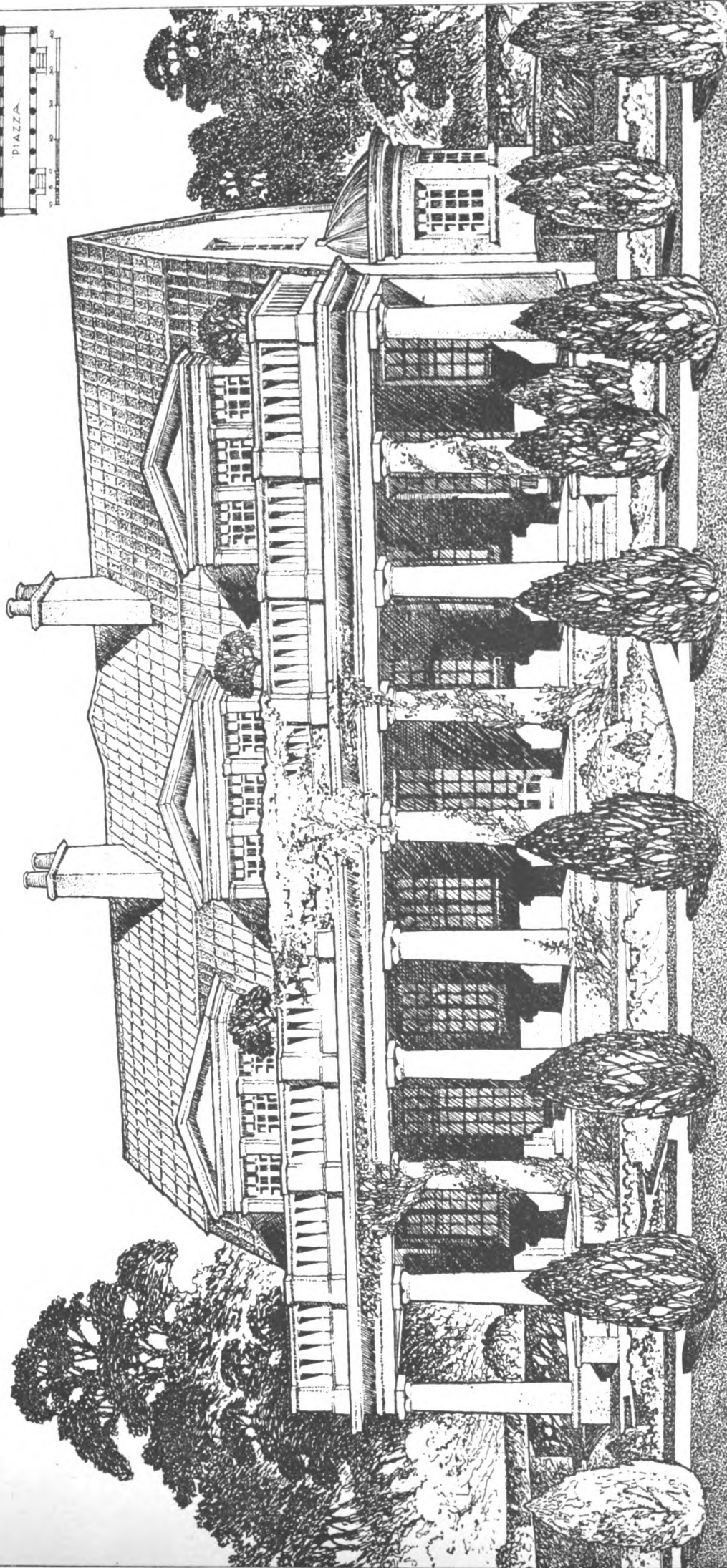


PHOTO-LITHO SPRAGUE & CO. LTD. 68 & 70, DEAN STREET, BOND, W.





PRUDENTIAL ASSURANCE BUILDINGS, MIDDLESBROUGH.
MR. PAUL WATERHOUSE, M.A., F.R.I.B.A.

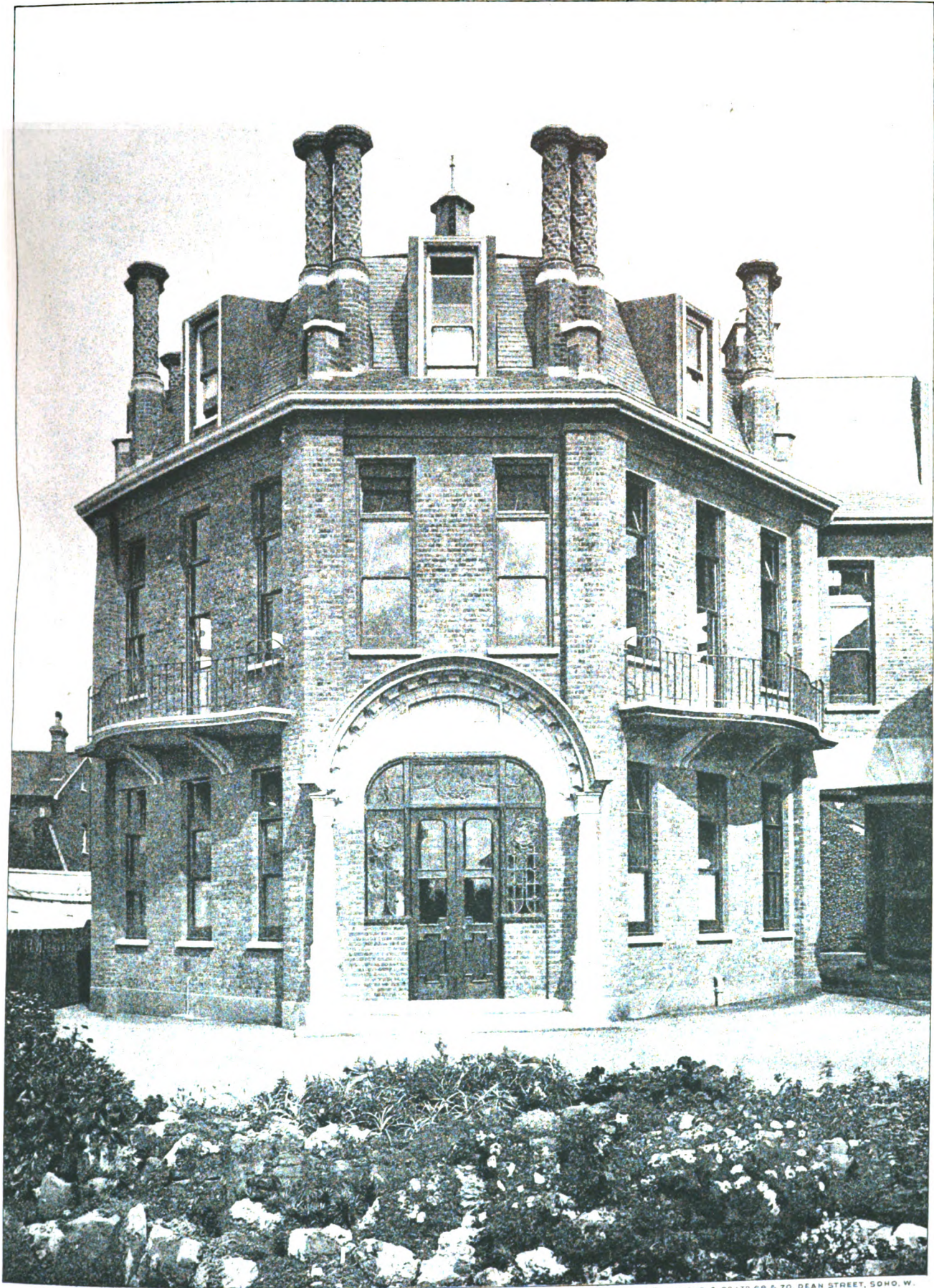


"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

PRUDENTIAL ASSURANCE BUILDINGS, DONCASTER (PRELIMINARY DESIGN).

MR. PAUL WATERHOUSE, M.A., F.R.I.B.A.

The Architect, July 18th 1913.



INK-PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

KING EDWARD VII. MEMORIAL, CROYDON.

MR. FRANK WINDSOR, Architect.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



•• S. MARY'S BEVERLEY ••

•• The South Porch • del. Mar. 1913 ••

Alpha

ROUND FACINGS in PURPLE, GREY, RED, & BUFF.

FACINGS IN ALL SHAPES AND SIZES MADE TO
ARCHITECTS' SPECIFICATIONS.

The Bricks used in the Chimneys of King Edward's Memorial
Hospital, illustrated in this week's issue, were supplied by

THE SUSSEX BRICK & ESTATES CO. LTD.

Offices: 52 NORTH STREET, HORSHAM.

Telephone No.: 57 Horsham.

Telegrams: "Brick, Horsham."
"Brickworks, Warnham."
"Brickworks, Southwater."

PEN-YR-ORSEDD

SLATE QUARRY CO., Ltd.,

Supply Best and Seconds Red and Purple

SLATES

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

TO MERCHANTS AND THE TRADE.

W. M. DUNCAN TUCKER & SONS, LD.

TELEPHONE
TOTTENHAM.

TOTTENHAM. N.

TELEGRAMS
"HORTICOLE
LONDON"

JOINERY OF EVERY DESCRIPTION MOULDINGS TO ANY DESIGN

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0	Asbestos-covered £1 12 8
F.O.R. Twickenham.	

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

BUILDING PROGRESS IN THE PROVINCES
AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CHESHIRE.

Alderly Edge.—David Lewis Epileptic Colony, Great Warford: extension.

Stockport.—Police buildings, Warren Street. Mr. M. Lane, contractor, Heaton Lane, Stockport (£12,320).

CORNWALL.

Redruth.—Union Infirmary: extension. Messrs. Mitchell & Bond, contractors, 4 Tehidy Road, Camborne.

St. Erth.—Postal, &c., Offices, shops, and stores, Chapel Yard, for Mr. F. Trevaskis, junr.

CUMBERLAND.

Carlisle.—Guardians' Offices, Victoria Place: alterations (£1,000). Mr. Graham, Council engineer.

Postal, &c., Offices, Warwick Road, for H.M. Office of Works. Messrs. J. Laing & Son, contractors, Milbourne Street.

Penrith.—Council School (£7,500).

DEVON.

Devonport.—Workhouse Nurses' quarters. Mr. C. Cheverton, architect, 64A Chapel Street (£1,700).

Tiverton.—Eighteen municipal cottages (£2,800). Messrs. J. Grath & Sons, contractors, Silver Street.

DURHAM.

Easington Colliery.—U.M. Church, for 450 sittings (£1,200).

Miners' Hall and Institute, Seaside Lane (accommodation for over 1,000 people). £5,000.

Two checkweighmen's houses, Seaside Lane.

Esh Winning.—Buildings for Annfield Plain Co-operative Society (£5,000).

Hartlepool, The.—Holy Trinity Church: Club-rooms (£800).

Mission Church for St. James' district.

St. Luke's Church, West Hartlepool (£4,800).

Houghton-le-Spring.—House, Chester Street, for Mr. G. McCall.

Fifty working-class houses.

Stanley.—Cottage Hospital.

ESSEX.

Aveley.—Council School: enlargement. Mr. F. Whitmore, County architect, 73 Duke Street, Chelmsford.

Barking.—Secondary School.

Danbury, Little Baddow, and Sandon.—Eight pairs of houses, for Chelmsford R.D.C. Mr. G. F. Andrassy, architect, Surveyor's Office, Bank Chambers, Chelmsford.

GLOUCESTERSHIRE.

Bristol.—Premises, for the Royal Colonial Institute. Messrs. Bridgman & Bridgman, architects.

HAMPSHIRE.

Portsmouth.—Forty Municipal cottages, Portsea (£7,000).

Tidworth.—House and shop. Mr. G. L. W. Blount, architect, 39 High Street, Salisbury.

HERTFORDSHIRE.

King's Langley.—County School. Mr. V. A. Smith, architect, Hatfield.

Tring.—Two houses, Beaconsfield Road, for Mr. E. Wright.

KENT.

Chatham.—The "Cannon Inn," Old Brompton. Mr. W. E. R. Randall, junr., architect, 171 High Street.

Gravesend.—Catholic Church, Northfleet. Mr. G. G. Scott, F.R.I.B.A., architect, 7 Gray's Inn Square, London, W.C.

LANCASHIRE.

Grange.—The Club and Institute Union: convalescent home (£15,000).

Liverpool.—Picture Theatre, Netherfield Road North, for Mr. W. E. Jones.

Picture Theatre, Smithdown Road and Magdala Street, for Mr. F. W. Quilliam.

Picture Theatre, Daulby Street, for Mr. R. Duncan French.

Theatre for Stage plays, &c., James Street and Church Road, Garston, for Mr. A. Sidwell.

LEICESTERSHIRE.

Barwell.—Church Institute.

Loughborough.—Technical Institute: extension, in Ashby Road (£4,800).

LINCOLNSHIRE.

Lincoln.—House, Lindum Avenue, for Lincoln Land and Building Society.

Two houses, Monks Manor Estate. Messrs. W. Wright & Son, builders, Park Street.

House, Greetwell Road, for Mrs. H. Watson.

Fourteen houses, Union Road, for Messrs. McKinley & Co.

Six houses, Boundary Street, for Mr. C. Woodcock.

House and shop, Monks Road, for Mr. H. Curt.

Workhouse: Laundry.

Stables, West Bight and Chapel Lane. Messrs. L. E.

Close & Sons, contractors, Brayford Side North.

Lissington and Nettleton.—Workmen's cottages, for Cais-tor R.D.C.

MIDDLESEX.

Ealing.—Slipper Baths, Northfield Avenue. Mr. C. Jones, M.I.C.E., Borough surveyor; also

Branch Library, West Ealing: extension.

Hanwell.—Council School, Oaklands Road: additions (£600).

MONMOUTHSHIRE.

Pentwyn.—Schoolroom (£700), for the English Congregational Church.

NORTHAMPTONSHIRE.

Rushden.—Shoe factory, Portland Road, for Messrs. A. Wilmott & Son.

SOMERSET.

Taunton.—Billiards Saloon, Trinity Street, for the Holy Trinity Working Men's Club.

Euston Villa, Cheddon Road: additions and alterations, for Mr. J. Page.

House, Greenway Road, for Mr. Tottle.

Weston-super-Mare.—House, Ellenborough Park North. Messrs. Jane & Fry, architects, Waterloo Street.

Writhlington.—P.M. Church. Mr. G. H. Gibson, architect.

STAFFORDSHIRE.

Biddulph.—Central Council School: enlargement. Mr. T. Godwin (of Hanley), contractor.

Brierley Hill.—Special subjects Centre, Quarry Bank. Mr. C. A. Horton, contractor (£1,400).

Cheadle.—C. of E. School: improvements.

Fulford.—C. of E. School: re-construction.

Halmer End.—Council (mixed) School. Mr. E. Johnson, contractor, Church Street, Audley (£4,500).

Longton.—Dresden Church School: extensions. Mr. J. H. Beckett, A.R.I.B.A., architect, 18 Market Street. Mr. J. Walters, junr., contractor (£1,000).

Pelsall.—Infants' Council School, off Paradise Lane.

Rushall.—Infants' Council School.

Uttoxeter.—C. of E. Schools: rebuilding and alterations.

Mr. H. Sandy, architect, 22 Greengate Street, Stafford. Messrs. Gough & Son, contractors, Dudley Road, Wolverhampton (£4,800).

SURREY.

Godalming.—Church Room (£1,200).

Merton.—Fire Station.

SUSSEX.

Bognor.—Council School for 300 boys.

Kirdford, Kirdford Plaistow, and Northchapel.—Council Schools for 120, 100, and 130 children respectively.

Patcham.—Open-air school.

Shoreham-by-Sea.—Council School (£3,850).

YORKSHIRE.

Bingley.—Conservative Club. Mr. A. Bolton, architect, 161 Main Street.

Dewsbury.—Working Men's Club, Batley Carr: additions. Mr. W. F. Cave, architect, Halifax Road.

Marton.—Wesleyan Church. Messrs. Kitching & Lee, architects, 21 Albert Road, Middlesbrough. Messrs. Dean Brothers, contractors.

Methley.—St. Margaret's Church. Mr. H. S. Chorley (of Leeds), architect.

Mountain.—Speak Institute: alterations to farm buildings and other works. Mr. H. F. Sharp, architect, Cambridge Buildings, Queensbury, and 19 Thorpe Chambers, Bradford.

Sheffield.—(Supplementary to 11th inst.)—St. Clement's (Eyre Memorial) Church, Newhall. Messrs. Webster & Son, R.R.I.B.A., architects, 19 St. James' Street.

Thirsk.—Workhouse: alterations.

THE UNANIMOUS VERDICT

of REINFORCED CONCRETE CONTRACTORS who INSPECTED

THE "EXPRESS" POWER MIXER

WORKING AT THE BUILDING EXHIBITION—

"IT DOES MIX"

A leading firm of BRITISH Reinforced Concrete Contractors are obtaining an output from ONE "EXPRESS" MIXER of 12 CUBE YARDS Mixed Concrete PER HOUR—THEY NOW OWN TWO "EXPRESSES"!!

THE "EXPRESS"

IS SIMPLE AND EFFICIENT

↪ NO BOILER SCALERS NEEDED ↩

It is now being recognised that for reinforced concrete work perfect mixing is a prime necessity.

*THE "EXPRESS" IS USED BY THE WAR OFFICE,
CROWN AGENTS FOR THE COLONIES, Etc. Etc.*

The (U.K.) WINGET CONCRETE MACHINE CO., Ltd.
5 STAR BUILDINGS, NEWCASTLE-ON-TYNE

ENGLAND—continued.

YORKSHIRE—continued.

Westerdale.—Rectory. Messrs. Lofthouse & Sons, A.A.R.I.B.A., architects, 129 Albert Road, Middlesbrough.
Wylke.—Sunday Schools. Messrs. W. J. Morley & Son, R.R.I.B.A., architects, 269 Swan Arcade, Bradford.
York.—Blue Coat School: extension. Mr. T. Monkman, architect, Micklegate (£1,200).

WALES.

Glyn.—County School, Nantyr. Mr. W. D. Wiles, County architect, 24a High Street, Wrexham.
Port Dinorwic.—Conservative Club. Mr. L. L. Jones, architect, Tower Buildings, Bridge Street, Carnarvon.

SCOTLAND.

Arbroath.—Smallpox hospital.
Carnoustie.—House, Green Lane, for Mmes. Prain (of Lilybank).
Edzell.—Cookery and manual instruction rooms.
Fort Augustus.—Abbey Church.
Kilbirnie.—Council Chamber and hall for 712 people (£4,500).
Kirkcaldy.—Dairy premises and tenement of houses, Viewforth and Institution Streets, for the Pathhead and Sinclairtown Reform Co-operative Society.
 School and offices, Factory Road, for the School Board.
Penicuik.—Police Station. Mr. R. M. Cameron, architect, 53 Great King Street, Edinburgh.
Saltsburgh.—Public School: extension (£1,800).
Wishaw.—Villa, Glen Road. Mr. Black, builder, Hill Street.
 Cement Works, Manse Road, for the Glasgow Iron and Steel Co. (£15,000).

IRELAND.

Balbriggan.—Foresters' Hall, Hampton Street. Mr. M. J. Heeney, architect, George's Square.
Comber.—Thomas Andrews, Junr., Memorial Hall. Messrs. Young & McKenzie, architects, Scottish Provident Buildings, Belfast.
Dublin.—Nos. 1 and 2 Sampson's Lane. Messrs. Moore, Keefe & Robinson, architects, Foster Place.
 No. 9 Wicklow Street: rebuilding. Mr. C. H. Ashworth, F.R.I.B.A., architect, 12 and 13 William Street.
Eyre Court.—House at Fearmore. Mr. F. J. Molloy (of Banagher), architect.
Groiquenamanagh.—Boys' School. Mr. G. P. Sheridan, F.R.I.A.I., architect, 1 Suffolk Street, Dublin.
Kingsdown.—Hall for the Working Men's Club. Messrs. O'Callaghan & Webb, M.M.R.I.A.I., architects, 31 South Frederick Street, Dublin.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 23,541. Oct. 15, 1912.—Dated under International Convention May 3, 1912. Elastic concrete for manufacturing moulded bodies, and especially supports. Paul Starke, 10 Wegenerstrasse, Berlin, W. This invention relates to the manufacturing of moulded bodies of any kind, more especially supports such as girders, blocks, arches, floors, and the like from an elastic concrete of a great strength and a great resiliency, said concrete being only a little heavier than wood, fire, weather, and acid proof, and not liable to decay. The invention consists in that the bodies are made by pressing or ramming in suitable moulds a wet mixture of cement and flying ashes, which deposit on to the boiler tubes of locomotives. The improved concrete is exclusively formed with ashes, which deposit in locomotive boiler tubes, a small percentage of cement being added with the only object to connect together the particles of flying ashes in such a manner that the moulded supports manufactured from said concrete are provided with the essential properties, a high compressive strength and great resiliency. The weight of this concrete is much lower than that of all known concretes, and the concrete is frost, acid, oil, humus, and fire proof. The bodies or supports made of this concrete are able to be worked. Nails may be driven into it, it may be sawn, and threads may be cut into its mass. The new concrete owes its qualities to the presence

of locomotive cinders. If a concrete is manufactured with this material so that the added cement only serves for connecting together those hooks and barbed projections of the ash—that is to say, if the cement does not act as a resistant agent (for instance, 1 part of cement and 5 parts of ashes)—a body is obtained possessing great strength, together with great elasticity. Official tests made at the mechanic testing-station in Charlottenburg of a bar equal to that of a usual wooden railroad tie resists to a load of 167,200 kilograms, the strength or resistance to pressure being 109.7 kilograms to the square centimetre. Its gravity has been found equal to 1,079 kilograms a cubic metre, being only 25 per cent. higher than the gravity of wood. The improved concrete is also very adhesive, easy to work, nails can be driven into it, and it can be sawn and screwed. It is especially suitable for manufacturing all those supports required to resist great loads, or are exposed to the weather and to the moisture, such as girders, floors, arches, and foundation blocks. June 11, 1913.

PATENT SPECIFICATIONS PUBLISHED
JULY 10, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 6,572. March 16, 1912.—Leonard Waterhouse, 42 Westbourne Terrace, N.W., and J. B. S. Booth, St. Kilda, First Avenue, Bush Hill Park. Apparatus for the carburization of air.
 13,749. June 12, 1912.—W. J. Kenney, 35 Claremont Square, N. Collapsible wall support of the bracket type.
 14,159. June 17, 1912.—Frank Maller, 43 Millais Road, Enfield. Water closets.
 14,239. June 18, 1912.—Hermann Kopplinger, 23 Herklotzgasse, Vienna XV. Metal window frames.
 15,148. June 28, 1912.—H. H. Thompson, Caxton House, Westminster, S.W. Construction of columns, pillars, and the like of ferro-concrete.
 15,951. July 8, 1912.—R. E. Webb, 23 Grove Terrace, Highgate Road, Kentish Town, N.W. Means for facilitating the inspection of closed premises.
 17,914.—Aug. 2, 1912.—W. E. Bowl, Warborough, Walingford. Locks.
 18,054. Aug. 6, 1912.—Thos. Bowden, 6 Nelson Street, Stretford Road, Manchester. Glass signs.
 18,064. Aug. 6, 1912.—John Tuckwell, 797 Garscube Road, and J. B. Jack, 934 New City Road, Glasgow. Door operating appliances.
 19,440. Aug. 24, 1912.—E. A. Mitchell, 59 Broad Street Avenue, E.C. Connecting together of branch and main pipes.
 19,516. Aug. 26, 1912.—H. D. Becker, Iserlohn, Westfalen. Windows and other glazed frames.
 20,222. Sept. 5, 1912.—A. Pullen-Burry, Rectory House, Sompoting, Worthing. Movable hothouses.
 20,683. Sept. 11, 1912.—John Alty, 14 Oswald Road, Ashton-on-Ribble, Preston. An automatic waste-preventing valveless syphon flushing cistern for the flushing of urinals, water closets, and the like.
 21,136. Sept. 17, 1912.—Wm. Oates and F. P. Barber, Horley Green Works, Horley Green, Halifax. Branch inlets for drain and other pipes.
 21,397. Sept. 20, 1912.—Perkin & Co., Ltd., Lord Street, Leeds, and L. C. Perkin, Highfield House, 56 Town Street, Beeston, Leeds. Sawing machine for cutting wood or metal.
 21,402. Sept. 20, 1912.—E. H. Morgan, 17 Gracechurch Street, E.C. Smoke-consuming firegrates, furnaces, and the like.
 21,450. Sept. 20, 1912.—A. M. & J. M. Aubert, 3 rue de la Ferme, Billancourt, Seine, France. Gas heated radiator systems of heating.
 21,744. Sept. 24, 1912.—Dated under International Convention Sept. 25, 1911.—E. G. Gillet, 84 Boulevard Auguste Blanqui, Paris. Method of rendering wood used in carpentry and joinery work indeformable.
 27,538. Nov. 29, 1912.—Max Terp, Friedrichstr. 36, Zittau, Saxony. Cooling safe.
 28,344. Dec. 9, 1912.—W. J. Gregory, 72 North Birkbeck Road, Leytonstone. Lead glazing for all kinds of glass roofs.
 2,348. Jan. 29, 1913.—Moriz Sax, V1/2 Liniengasse 45, Vienna. Machines for shaping semi-plastic materials.
 5,002. Feb. 27, 1913.—Oscar Kuthemann, 62 Kavalieri-str., Dusseldorf. Material for rendering impervious floors, walls, roofs, and the like.
 Any of the above specifications may be obtained from J. D. Roots & Co.

Tel. Nos.: {Cheltenham, 798 & 799
London, North 2165.Glasgow, P.O. Central 979.
Manchester, Central 5416.Telegrams: {Sunningend, Cheltenham.
Sunningend, London.**H. H. MARTYN & CO., Ltd.****CARVERS****And Architectural Decorators.****250,000 feet of Dry ENGLISH OAK in stock.****BRANCHES**

LONDON: 192 ALBANY STREET, N.W.

GLASGOW:
30 GEORGE SQUARE.MANCHESTER:
6 SOUTH KING STREET**Head Office: Sunningend Works,
CHELTENHAM**Is it a FIREPROOF BUILDING you want?**Use URALITE***It is Fireproof, Economical and Easily Fixed.*Is it a FIREPROOF PARTITION or CEILING you want?**Use URALITE***which is Fireproof, Vermin-proof and Damp-proof.*Is it an old building that needs to be made FIREPROOF?**Use URALITE***No Fire can penetrate a URALITE LINING.***Supplied in sheets 6' x 3' or smaller sizes from $\frac{1}{8}$ " to $\frac{3}{8}$ " thick.****"URALITE" is specified by the
L.C.C., H.M. Office of Works, Admiralty, War Office,
Metropolitan Asylums Board, and the leading Architects.**READERS of "THE ARCHITECT" are invited to write
for a copy of our NEW, FULLY ILLUSTRATED BOOKLET.**THE BRITISH URALITE CO. (1908), Ltd.**

(Room 17), 85 GRESHAM STREET, E.C.

"THE BEST ENAMELS FOR THE BEST RESULTS."**"ENDELLINE" & "ENDELFLAT"**

Used with unfailing satisfaction wherever the finest enamel finish is required.

THOS. PARSONS & SONS,

Makers of the highest class of Varnishes and Japans for over a Century.

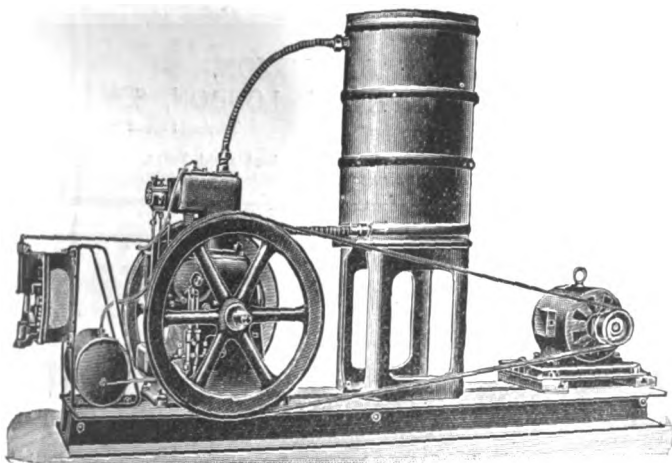
**8 Endell Street, Long Acre,
LONDON, W.C.**

THE "LISTER-BRUSTON" LIGHT AND POWER PLANT.

At the recent Royal Agricultural Show held in Bristol, Messrs. R. A. Lister & Co., Ltd., the well-known agricultural and electrical engineers, of Dursley, Glos., had a very comprehensive display of their various specialities in the Machinery Section.

A prominent feature of the exhibit was the "Lister-Bruston" Automatic Electric Lighting and Power Plant. It will perhaps be remembered that this automatic plant created quite a sensation when first exhibited at the Royal Show at Norwich, 1911, where his Majesty King George honoured Messrs. Lister's stand with a special visit. Some 500 "Lister-Bruston" plants have since been installed, amongst others for Mrs. Asquith; Crathie Parish Church, Balmoral (used by his Majesty the King); the Artillery Mess, Shoburyness; Lady Scott, Guildford; Colonel Cootie, Northampton; General Hammersley, Bideford; and Mr. Erskine Pollock, K.C., Avening. Among the orders in hand are installations for the Lord Chancellor of Ireland, the Right Hon. Lord FitzHardinge, Captain Van Rozenburg (Lydney), Major Bulpett (Arlesford), Mr. H. Russell Thomas (Thornbury), &c.

The great feature of this plant is that it starts or stops itself simply by turning on or off any ordinary switch—no costly accumulators, no special buildings or foundations, or skilled attention is required. The "Lister-Bruston" plant is as popular abroad as in the British Isles, and large numbers are being shipped to all parts of the world. The success of the plant is specially due to the extreme reliability and efficiency of the "Lister" Petrol Engine, with which it is driven. A complete series of these engines were shown at work, operated by petrol (cheapest kind),



petroleum, and gas. Messrs. Lister have been kept busy night and day to keep pace with the demand. All gearing is enclosed; self-lubrication is also a feature, the oil being automatically pumped to the bearings and used over and over again, thus ensuring not only perfect lubrication, but a great saving in oil. No greater proof of the efficiency and reliability of these engines can be afforded than the fact that they are used exclusively to operate the "Lister-Bruston" electric plant, which starts and stops scores of times without any human attention whatever, for weeks on end. Whilst for small powers nothing is so reliable and convenient as petrol, yet on account of its price some buyers prefer to use a petroleum engine. Messrs. Lister cater for this demand, and exhibited a full line of these engines fitted for use with ordinary petroleum—a vaporizer of extremely neat and simple design enables the oil to be gasified before reaching the cylinder. But the feature which will appeal to users generally is that, notwithstanding oil fuel is used, the engine can be started instantly—just as quickly as with a petrol engine. The new $1\frac{1}{2}$ h.p. engine (exhibited for the first time) will be found very useful for lighting, pumping, and other light power purposes.

One of the oldest and by no means the least important of Messrs. Lister's branches is the Cream Separator and Dairy Department. Nearly 10,000 "Lister" Cream Separators are produced at Dursley annually. These machines find their way into almost every market; they embody in a marked degree the key-note of this firm's production—viz. simplicity and high-class quality and finish. The same remarks apply to their churns, butter-workers, and

woodware. The number of articles turned out in the wood-working department at Dursley runs into tens of thousands annually.

Established nearly fifty years ago, this Dursley firm now employs 1,000 hands with some sixty travellers, having their own branches in Canada, Australia, Belgium, Germany, and Austria-Hungary. Messrs. Lister are one of the most enterprising firms in Europe, and we are glad to hear that the chairman, Sir Ashton Lister, was able to pay his first visit to any show since his severe motor accident fifteen months ago.

THE BRITISH FIRE PREVENTION COMMITTEE.

The British Fire Prevention Committee make the following announcements as to classification obtained under the Universal Standards of Fire Resistance:—

A hinged door by Chubb's Lock and Safe Co., Ltd., made to an opening of 20 ft. super., has been classified as affording "Full Protection," Class B, on a four-hour test to temperatures exceeding 1800°, followed by the application of water.

Electro-glazing by the Luxfer Prism Syndicate, Ltd., has been classified as affording "Partial Protection." Class A, on a one and a-half hour test at temperatures exceeding 1500° Fahrenheit, followed by the application of water, for panels of 2 ft. by 2 ft., and the same classification has been accorded for panels of 3 ft. by 2 ft.—i.e., which exceed the regulation size by 50 per cent.

The official reports in respect to the above-named tests will be issued next month.

The British Fire Prevention Committee also desire to announce that the special series of fire tests with some eighty fire-extinguishers of different makes that have been in use for some time will be undertaken this month.

Of impending tests with proprietary articles, proprietary methods of building construction, tests for the summer season include a reinforced concrete floor, material suitable for light fire-resisting partitions and several fire-resisting doors.



The Church Building Society.

SIR,—Month by month the papers publish a list of the grants voted by the Incorporated Church Building Society towards building, enlarging, and repairing churches throughout England and Wales. But it is many years since there appeared in the Press any special appeal on the Society's behalf. Now, however, my Committee will be grateful for an opportunity to appeal to Churchpeople through your columns for immediate and generous assistance. This Society is approaching its centenary. Its usefulness both as a central granting organisation and as, perhaps, the principal medium for raising the standard of church architecture is generally and increasingly recognised. Its income from normal sources is gradually increasing, but not in proportion to present-day activity in church building and reparation. Do Churchpeople realise that hundreds of church building schemes are being undertaken year by year, that they nearly all look first to the Incorporated Church Building Society for assistance, and that impetus is given to the growth of the Church in every direction as the result of the help the Society accords? The Archbishop of Canterbury recently pleaded for help for "this old and tried Society," which his Grace described as "a central source of financial aid for building churches, and a source of information in matters relating to church building unrivalled by any body and never more needed than to-day."

Cheques should be sent to me at the Society's office, 7 Dean's Yard, Westminster Abbey.—Yours, &c.,

(REV.) T. T. NORGATE, Secretary.

7 Dean's Yard, July 12.

THE late Mr. John Oldrid Scott, F.S.A., F.R.I.B.A., the second son of Sir Gilbert Scott, who died a few weeks ago at the age of seventy-one, has left estate valued at £56,259. The net personalty was £39,998.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,

and
Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sewest, London." Telephone: Regent 2043.

N.B.—All above fitted with the best solid Tyres, i.e., Wood-Milne Steelrubber—other makes to order.

REDPATH, BROWN & CO., LTD.

Established 1802.

Incorporated 1896.

CONSTRUCTIONAL ENGINEERS.

Immediate delivery of Plain and Riveted Steel Work.
Stock consists of **20,000 Tons** in British Standard Sections of Joists, Channels, Tees, Angles, and Plates.

Two Specialties in Steel Construction:

BROAD FLANGE BEAMS.

SOLID COLUMNS.

Broad Flange Beams used as stanchions prove more economical than ordinary sections owing to their greater radius of gyration.

Large stock of Broad Flange Beams at our Works.



Solid steel columns possess great advantages in certain positions: Shop Fronts, Public Halls, Factories, Warehouses, &c.

Up-to-date plant for manufacturing.

Large stock.

Prompt delivery.

SECTION BOOKS AND STOCK LISTS ON APPLICATION.

LONDON,
Riverside Works,
East Greenwich.

EDINBURGH,
St. Andrew
Steel Works.

MANCHESTER,
Office and Works,
Trafford Park.

GLASGOW,
Office: 75 Bath Street.
Works: Port Dundas.

The Architect.

CONTENTS.

	PAGE
The New Delhi	73
Notes and Comments	74
L.C.C. Reinforced Concrete Regulations	75
Silhouettes at South Kensington	76
Competition News	76
Illustrations :—	
Church of St. Andrea, Vercelli, Piedmont	76
An Italian Monument of English Origin (illustrated)	77
R.I.B.A. Examinations	80
The Royal Archaeological Institute	80
The New Revenue Bill and Building	81
The Artificial Lighting of Schools and Libraries	81
Ghent Exhibition	83
Parish Church of Fontevault, near Saumur (illustrated)	83
The Architectural Association	84
Royal Society of Portrait Painters	87
Employment of Surveyors for Bills of Quantities	89

	PAGE
Building Progress in the Provinces	91
British Patent Specifications	93
Correspondence	95

FORTHCOMING EVENTS.

Saturday, July 26.

Upper Norwood Athenæum : Excursion to Colchester (whole day). Mr. H. W. Burrows, A.R.I.B.A., leader.

Monday, July 28.

Institution of Mechanical Engineers : Summer Meeting at Cambridge.

Monday, August 4.

Northern Architectural Association : Students' Sketching Club, Annual Excursion.

Saturday, August 9.

Architectural Association : Annual Excursion. Headquarters at Rouen (August 9-16).

THE NEW DELHI.—II.

THE second report of the Delhi Town Planning Committee is a reply to and refutation of various criticisms and an advocacy of the northern site, which appears to have taken its rise from a Paper before the Royal Society of Arts in London, read by Sir Bradford Leslie, an engineer with a distinguished Indian career. In this he sets forth plans for building the new capital on the northern site, and producing a fine water effect by the treatment of the river Jumna. A number of letters and articles in the Press appeared about the same time, expressing a preference for the northern site. The Committee, as noted in their first report, had themselves experienced a natural attraction to the northern site on their first visit to Delhi.

The advocacy of this site was based upon a sentimental view of its more obvious advantages. It has its memorable associations with heroic deeds and great names; it is the scene of the Durbars; it is the place where their Imperial Majesties laid the commemoration stones; it is the place where such English population as Delhi has at present now resides; it has some bungalows, gardens, and trees; it is near some temporary amenities, such as the polo grounds, the shops at the Cashmere gate, and the Chandni Chowk, which the residents are in the habit of using; it shelters in reasonable comfort the existing population, augmented by additions for the camp offices of the Government of India. Why should it not contain all the population which was to move here?

These views were expressed with abundant force, honesty, and enthusiasm, and undoubtedly have their roots in fact; but real and scientific town planning takes account of more important matters than sentiment, and few of the writers extended their view, beyond the more obvious limits of the associations of sentiment and custom, into the real problems of the situation. No thought was taken of the area which had to be provided, or of the total number of the population which must eventually reside on the site, if this was to be the permanent capital and the centre of Government for seven months in the year. Full weight was not given to the undoubted ideal that the new capital was to carry on in British hands the tradition of Imperial Delhi and set a standard of beauty, comfort, and health for India.

The sanitary and engineering difficulties of the site and the question of cost found no place in these schemes, but the public advocacy of the northern site was of so

much weight that the Committee, at the request of his Excellency the Viceroy, devoted themselves to a further consideration as to whether any possible alteration of the data would make it feasible to place the new capital on the north site, and the second report accordingly deals with the possibilities of adjusting the new Delhi to the limitations of the northern site, rather than to finding a site which would suit the presumed requirements of the new capital of India.

Even by cutting down the basis of accommodation to a minimum, the Committee came to the conclusion that at least five square miles would be required, and this would provide no area for extension. Having reduced the area to five square miles, instead of the ten square miles that they originally considered necessary, the Committee then set to work to see what possibilities existed of obtaining this five square miles; although, at the same time, they pointed out that this minimum area was, in their opinion, insufficient for the future expansion of the capital of India.

The Committee found that the total area available lying to the east of the Grand Trunk Road, not at present developed, excluding the southern portion of the Ridge, the parks, cemeteries, civil lines, and open land outside the city walls, amounts to four square miles, and that if the area of the civil lines, together with the *Bela* north of the railway bridge, be added, a total area of five and a quarter square miles can be obtained for the site of the new city. A considerable portion, however, in this area is subject to flood from three different sources—the river, the Najafgarh drain, and local rain. Some of this would have to be raised three feet, some eight feet, some eleven feet above its present level to avoid flooding, and the Najafgarh drain would have to be diverted.

The cost of the acquisition of land north of the present town of Delhi would also be very much greater than that on the south. In making a calculation for comparison, the Committee assumed that the lay-out on the southern site would also only occupy five square miles. They then show that the actual charges falling on the land would be, in the case of the north site £1,020,000, and in the case of the south site £153,000. The cost of other operations in preparing the sites for the requirements of the new city would be, in the case of the north site £100,000 and of the south £95,000, so that the total extra cost of the adoption of the north site would thus be £872,000.

But of even more serious consideration than the question of cost is the fact that the northern site would

limit expansion, and even after expenditure on sanitary requirements will never be satisfactory from a health point of view. Then again, in the process of reconstruction, the temporary amenities of the northern site would mostly disappear, and the present population of the civil lines would be subjected to great discomfort and inconvenience, while the Government of India would probably have to stay away altogether.

The Committee, in their conclusion, enunciate the governing principle of the town planning movement as "foresight," and have expressed their conviction that it is inconceivable that Delhi will not grow. She is the most central spot in the railway system of India, she possesses historic and artistic interest, and she is once more India's Governmental capital. Necessity, convenience, and fashion will all bring people to her. If the city is placed on the south side, expansion will take place over land which is cheaper, better, and more healthy the further she grows. On the north, once she overlaps the limited area, the land becomes more costly to buy or to treat, worse in soil, and less healthy.

The Committee conclude with expressing their belief that the northern site is too small and too cramped, and that a world city cannot be safely fitted upon it at all, far less provided with ground over which to expand, without including some land which would be very costly to buy, and much land which will be very costly to make healthy, even if so sour and poor a soil could ever be made really healthy.

As an appendix to the report of the town planning experts is included a report signed by C. P. Lukis, H. T. Keeling, and J. C. Robertson, upon the comparative healthiness of the proposed northern and southern sites for the new Imperial City of Delhi from a medical standpoint. The doctors confirm the judgment of the town planners as to the relative healthiness of the two sites. They are of opinion that in the northern area there would be grave risk of excessive sickness from rheumatic affections and diseases of the respiratory system, including tuberculosis. They show that the malarial endemicity of the northern site is by far the greater, and that, while the average mortality in the villages of the southern area over a period of five years works out at 15.1 per mille per annum, that of the northern area reaches 46.0.

In conclusion, the Medical Committee states that it is bound to advise the Government of India that no doubt can exist as to the superior healthiness of the southern site, the medical and sanitary advantages of which are overwhelming when compared with those of the northern site.

NOTES AND COMMENTS.

THE question "Can architecture be taught?" on which Mr. March Philipps has discoursed for a column and a quarter in the *Morning Post*, can be answered very simply by the use of the proverb, "You can't make a silk purse out of a sow's ear." You can teach the business of architecture, you can teach the science of construction, you can teach the history of architecture, but you cannot make a man an artist unless he has within him the germ of artistic ability. Mr. Philipps appears to think that registration and its corollary, education, will be useless because they would not necessarily produce architects of high artistic ability, and while this undoubtedly is so, Mr. Philipps should not forget—if he is aware—that architecture is at present practised by a large number of people who are not qualified in the business of architecture, the science of construction, or the history of architecture. It is not the front rank men, the specialists in the art of architecture, who feel the stress of the competition with the unqualified and the quack, but the general practitioner, whose work, if not of the highest artistic quality, is good, sound, and useful to the community.

The example that has been set by Mr. Joseph E. Southall is one that we should like to see followed to a

large extent. Mr. Southall has addressed a letter to the Chairman of the Birmingham Education Sub-committee, in which he says: "I have just recently returned from North Italy, where every city, and even every little town, seems to have its public buildings enriched with frescoes and other mural decoration. I see no reason why we should not have something of this kind, and, therefore, to make a very humble beginning, I now write to you as chairman of the School of Art Committee, to say that I should like to present the city with a small fresco, to be painted in a corridor of the new Council House Extension, if the Lord Mayor and Council are willing to accept it. The subject and design I would, of course, submit to you."

We may take it that the recent action of the West Sussex Education Committee is a result of the report of the Departmental Committee on the possibility of lessening the cost of new school buildings by the adoption of modern, if less permanent, methods of construction than have usually heretofore been adopted. In the present state of opinion amongst educationalists in England, when our whole system of education is in the melting-pot, it is palpably inadvisable for buildings of great permanence to be erected for use as schools. During the last few years we have seen the central hall deposed from its position as the key of an elementary school plan. There is no knowing what further vital modifications may be required by educationalists during the next twenty years, and accordingly the West Sussex Education Committee may be considered to be acting wisely, even though the reduction in the cost of their buildings is no more than 25 per cent. under the ordinary cost. The plan adopted was described by Mr. W. A. Hounsom, chairman of the Building Sub-committee, as an experiment of some interest, as it included accommodation for a cookery centre and workshops made of a new description of expanding steel work called "Hyrib." The building would be put up with a framework of wood or metal. This "Hyrib" expanded metal work would be placed both inside and outside, and plastered on the outside with cement, and on the inside probably with plaster. It would be roofed with asbestos sheeting, so that there would be a light roof and a lightly constructed building, and the cost would be about 25 per cent. under the ordinary cost, supposing the building were put up with the usual material. It was not imagined that these buildings would be so permanent in their character as those put up with ordinary materials, but they would be efficient. They were only in the first place for cookery and technical purposes. If they were used for ordinary purposes, owing to the thinness of the building there would be extra cost for heating in the winter. The proposal saved 3*d.* on a shilling, so that where on the ordinary basis the local people paid 9*d.*, and the Education Authority 3*d.*, the local people would now pay 6½*d.* and the Education Authority 2½*d.*

The fusion of the architectural schools hitherto held at University College and King's College into the University of London School of Architecture will be complete at the opening of the new session in October, when the new buildings at University College will provide accommodation for one hundred students, and thus will be the largest and most complete of its kind in the United Kingdom. They include three large studios (50 feet square, 35 by 22 feet, 27 by 29 feet) for both ordinary and advanced students; a museum (50 feet square); a cast gallery (48 feet by 28 feet); a library (35 feet by 22 feet); a lecture theatre (46 feet by 28 feet), with two screens for double lanterns; and a class-room (27 feet by 19 feet). There are also private rooms for professors and lecturers, a diagram room, dark rooms, cloakroom, lavatories, and additional rooms for new developments, which can be utilised as required. It is intended to use some of these rooms at an early date for a department of town planning. The new buildings adjoin the Slade School of Fine Art, and new modelling studios are about to be erected, so that the three great arts of painting, sculpture, and architecture will be housed side by side.

The Senate of the University and the University College Committee will have the assistance of a special Architectural Education Committee in managing the school. This committee includes the following eminent architects: Professor S. D. Adshead, F.R.I.B.A.; Mr. Reginald Blomfield, A.R.A., President R.I.B.A.; Mr. Ernest Newton, A.R.A., Vice-President R.I.B.A.; Mr. John Slater, F.R.I.B.A.; Mr. Andrew T. Taylor, F.R.I.B.A.; and Mr. Edward Warren, F.R.I.B.A. The director of the school is Professor F. M. Simpson, F.R.I.B.A., who will be assisted by Professor R. Elsey Smith, F.R.I.B.A.; Dr. J. J. Burnet, F.R.I.B.A., special visitor for academic design; Mr. Leslie Wilkinson, A.R.I.B.A.; and Mr. Arthur Stratton, F.S.A., F.R.I.B.A.

The work of the school will be aided by the teaching to be derived in other departments of University College; for example, in design of structures and strength of materials, teaching will be provided by Professor Cormack and Mr. E. Sprague; in hygiene and sanitation by Professor Kenwood and Mr. Sherwood New; and in painting and sculpture by Professor Frederick Brown and Mr. Havard Thomas. The programme of the school provides for full courses in architectural training, leading either to the Bachelor of Arts degree course (Honours in Architecture) of the University, or to the Certificate in Architecture. There is also an academic design course, which will be conducted on the lines of the course in the Ecole des Beaux-Arts, Paris. This is intended for those who have already taken a course of architectural training.

There will also be evening classes for those engaged in architects' offices during the day. The Carpenters' Company lectures will be continued as before, also the Carpenters' Company design class, to which Mr. Leonard Stokes and Mr. Edward Warren will be the special visitors; and an academic design class by Dr. Burnet will be added.

The prospectus of the Department of Architecture in the University of Sheffield has now been issued, in view of the commencement of the new session on October 1. Mr. W. S. Purchon, A.R.I.B.A., being the lecturer in charge. The Department provides: (1) A five years' course leading to the degree of Bachelor of Arts with Honours in Architecture (three years day and two years part day and part evening). (2) A three years' certificate course (two years day and one year part day and part evening). (3) A two years' diploma course (a part day and part evening course, following the certificate course). (4) Special evening courses (a) Architectural drawing (Wednesdays, 6.30—8.30, fee, 10s. 6d.); (b) English architecture (Wednesdays, 5.30—6.30, fee, 10s. 6d.); (c) Tutorial class for December R.I.B.A. final (hour to be arranged, fee £1 1s.). (5) Courses in surveying. A preliminary year course has been arranged to meet the requirements of the R.I.B.A. preliminary and the matriculation examinations. Students who obtain the first-class certificate (awarded at the end of the third year) are exempted by the Royal Institute from all but the final examination qualifying for A.R.I.B.A.

The exemptions from increment value duty provided by the new Revenue Bill are an admission that the building trade has been hard hit, in spite of Mr. Lloyd George's "prave worts," by the present administration of the land taxes. The promise of relief made by the Bill may not necessarily speedily mature, as it is understood that the Government are still unable to say whether the Bill can be passed this Session or not, and that this may depend in part on the way in which its provisions are received. Nor can we be quite sure without careful examination that the promised relief as put forward in the official statement will result from the Bill as drafted, still less from the final form of the Act when passed. The official version of the operation of the Finance Act differed so widely from its actual effect as interpreted by assessors, valuers, and the courts that we may be pardoned for reserving our judgment.

L.C.C. REINFORCED CONCRETE REGULATIONS.

A QUESTION of great interest to architects and builders, arising out of the recently approved regulations of the L.C.C. with regard to reinforced concrete, was asked at the meeting of the Council on Tuesday last. Having regard to the technical importance of the points raised, we reproduce the question and answer practically verbatim.

Major Levita asked the Chairman of the Building Acts Committee whether, in view of the fact that the regulations with regard to reinforced concrete which were approved by the Council on June 24, and which have been advertised as required, and for which application to obtain the allowance of these regulations will be made shortly to the Local Government Board by the Council, he will state—

1. Whether the officials of the Council are fully satisfied that no further data are desirable upon all the matters fixed by the proposed code for reinforced concrete; and, if they are not, whether a provisional ratification by the Local Government Board for, say, two years would not be advisable?

2. Why no formulæ are given in the code for double reinforced beam sections which are extensively used?

3. Whether the use of the three different modular ratios specified in Clause 48 would not enormously increase the labour of designers and district surveyors?

4. Upon what experimental data the new ratios were decided? Whether such data were derived from direct tests of the behaviour at working stresses of all types of beams and columns in ordinary use; and, if not, whether any further alteration is possible upon extended research?

5. Whether the joint effect of reducing the modular ratios and also reducing the permissible stress in Clause 25 is not equivalent to penalising rich concretes by making them weaker under the code than weaker mixtures?

6. (a) Whether concrete mixtures richer than 1:2:4 are generally discredited in good practice; (b) whether they are used in Government buildings; (c) or whether they are penalised under the code because district surveyors are not given sufficient powers of supervision to ensure their subsequent use after being specified in calculations?

7. Whether the institutions named in the Council's General Powers Act, 1909, and mentioned in the committee's report, were invited to take part in the protracted negotiations referred to in the report as having taken place with "technical advisers of the Council and the Board" or were advised that such negotiations were in progress?

8. Whether any of the institutions named in the Act objected to the test deflection specified in the 1911 code as being one which weak beams could pass, and suggested a more stringent test?

9. Whether the corresponding test deflection in Clause 148 is not in effect the Council's 1911 test applied to beams with fixed ends, and is therefore less stringent than that proposed by the institutions?

10. Whether any authoritative experimental data exists by means of which the deflection of beams with fixed ends can be determined?

11. Whether experimental research is not being carried out now at the National Physical Laboratory at Teddington, and whether the Council has taken any steps to acquire any necessary data under the powers granted to it under the 1909 Act by research at Teddington, University College, or any college of similar standing?

12. Whether the Council has taken any steps to ascertain whether the large Government buildings now being erected in London by H.M. Office of Works would comply with the proposed code?

Mr. Andrew T. Taylor (Chairman of the Committee) said in reply:—

1. The Building Acts Committee is satisfied that the data available are sufficient to frame a practical code which will ensure a reasonable standard of stability, and which would be acceptable to the technical societies. Any regulations allowed by the Local Government Board can be reviewed and modified when the Council desires.

2. Provision for doubly reinforced beams is provided for under Regulation 55, and it does not appear at this stage of accepted data that formulæ for this purpose are necessary in the regulations, but they will not prevent designers working by formulæ complying with the conditions set down in the regulations.

3. Objection has been raised in the technical Press to the use of a single uniform modular ratio for concretes of differing elastic moduli as given in the draft as submitted to the

Local Government Board. The latest joint report of the American technical institutions adopts three different modular ratios. Most of the designing will be done from tables and diagrams. The use of three different modular ratios is not compulsory under the regulations, and is only provided for in reference to different mixtures of concretes which have different moduli. The labour for designers and district surveyors, when the mixture is decided, would appear to be the same in each case.

4. All the experimental data which is known to the Council has been examined and compared. The Council has not thought it necessary, with the Local Government Board as final appeal, to conduct experiments on its own account to arrive at a sufficient basis for formulating regulations for submission.

5. The joint effect of using a more correct modular ratio for richer mixtures of concrete and only allowing for a small increase in the permissible working stress on richer mixtures may have the effect of decreasing the use of concrete of the richer mixtures. The regulations as made by the London County Council for submission did more decidedly differentiate between the various mixtures.

6. (a) Experts have stated that 95 per cent. of all reinforced concrete work in this country was made with proportions 1:2:3 or weaker.

(b) It is understood the General Post Office building at King Edward Street, E.C., was erected with a mixture of approximately 1:2:4.

(c) It is not seen that there is any limitation whatever on the powers of the district surveyor to supervise the work in course of construction.

7. In the regulations formally made by the Council it embodied all suggestions of the technical societies which it was considered could be adequately defended. The technical societies sent their views on this draft in writing direct to the Local Government Board. It is in the discretion of the Board under the principal Act what they will allow.

In addition to the societies mentioned in the Act, five other technical societies, viz. the Institute of Builders, the London Master Builders' Association, the District Surveyors' Association, the British Fire Prevention Committee, and the Fire Offices Committee, were consulted on two separate occasions, and their views have been carefully considered. The societies now have the draft regulations before them for the third time.

8. Yes, subject to the answer to No. 9.

9. That is so. According to the proposals of one of the technical societies it may be considered less stringent, but the Council and the Local Government Board consider the provision is ample for safety. There was ambiguity about two other representations on this point.

10. Sufficient data exists to enable the Council to determine the limit which might be taken as a practical test of undue deflection which may arise on faulty work.

11. It is understood some tests on reinforced concrete are being carried out at the National Physical Laboratory at Teddington. As a great number of reinforced concrete buildings and structures have been erected in this country during the last twelve years, it did not seem desirable to await finality, which may not be attained for many years. Meanwhile the necessity of making regulations is pressing.

12. Government buildings are, as far as construction is concerned, exempt from the Building Acts, and are outside the Council's jurisdiction in this connection.

SILHOUETTES AT SOUTH KENSINGTON.

THE work of August Edouart (1789-1861), the brilliant French silhouettist, is well known to connoisseurs. Practising his art chiefly in the British Isles and in America, he has left behind him the most remarkable series of authentic pictorial documents which has ever been bequeathed to the world.

Edouart cut each portrait in duplicate from folded black paper. Placing one of the originals in a folio, he added the name of his sitter, date, and place where taken, just as a modern photographer keeps his negatives for reference; he used his volumes also for exhibition purposes. Edouart thus accumulated an enormous number of interesting portraits, not only of kings and princes, such as those beautiful portraits taken by him at Holyrood Palace in 1831, but of the "landed gentry and aristocracy," whose houses he visited, and also the humbler folk who thronged his studio when he worked in a town or village. These latter portraits are often

of great value to the descendants on account of the rarity of other pictorial records as well as the perfect accuracy of the likeness.

The portraits measure about seven or eight inches. Almost all are full length.

Fifty representative examples have been recently presented by Mrs. Nevill Jackson to the Victoria and Albert Museum, and are now hung in Room 83, where they can be studied side by side with the silhouettes at present on loan from Francis Wellesley, Esq.

COMPETITION NEWS.

THE First Commissioner of Works has informed a member of Parliament that the Department will probably be unable to decide anything definite about the proposed competition for new Government Buildings, Edinburgh, before the beginning of 1914. The Calton Hill scheme is at present in abeyance pending the provision of funds.

BARNES.—The Urban District Council have agreed to invite designs and estimates for a covered swimming bath, the cost of which must not exceed £7,000.

BLACKBURN.—Aug. 30.—The Corporation of the county borough of Blackburn propose to erect a new fire brigade station and firemen's dwellings on the Wrangling, Blackburn, and invite architects who have offices situate within the borough to submit designs in competition for such works. Copies of instructions to architects, together with a plan of the site, with levels, may be obtained on application to Mr. Lewis Beard, Town Clerk.

CHRISTIANIA.—The University authorities of Christiania invite competitive designs from home and foreign architects and engineers for the laying out of their property at Toien. The sum of 5,000 kroner has been allotted for the three premiums. The jury reserves the right to buy plans which have not been awarded a prize at 500 kroner. Plans must be lodged not later than November 15. Particulars may be obtained on payment of 20 kroner deposit (returnable) from the Secretary of the University, Christiania.

DEVONPORT.—The important competition for the proposed Municipal Buildings and Guildhall was decided on Friday last. Mr. Ernest Newton, A.R.A., F.R.I.B.A., awarded the first premium of £350 to Messrs. Ashley & Newman, 14 Gray's Inn Square, W.C. The second and third premiums of £150 and £100 respectively go to Messrs. Harris & Moodie, 8 New Square, Lincoln's Inn, W.C., and Messrs. Knott & Collins, Adelphi Terrace House, W.C. Over a hundred applications were received for the particulars, and eighty-seven designs were sent in. The cost of the buildings was limited by the Devonport Corporation to £95,000, exclusive of fees and furnishing.

MOSSLEY.—The result of the architectural competition for a new Council School to be erected by the Mossley Education Committee at Foxplatt is as follows: First premium (£15 15s.), Messrs. Eaton, Son & Cantrell, Bank Chambers, Stamford Street, Ashton-under-Lyne; second premium (£10 10s.), Mr. F. Quentery Farmer, Liverpool and Coventry. Mr. J. H. Woodhouse, F.R.I.B.A., Manchester, was the assessor.

SKELMANTHORPE.—The Skelmanthorpe Urban District Council invite competitive designs for twelve workmen's cottages, to be built by the Council. For particulars apply to the Clerk, Wilson Fisher, Skelmanthorpe, near Huddersfield.

WARRINGTON.—The Education Committee have decided that architects be invited to compete for the planning of the new school to be erected in Lovely Lane. Draft conditions of the competition are now being prepared.

ILLUSTRATIONS.

CHURCH OF ST. ANDREA, VERCELLI, PIEMONTE.

OUR illustrations this week are devoted to the interesting church of St. Andrea, Vercelli, of which a full description is given in the article by Professor Melani.

MR. OWEN W. DAVIS, architect, died in London on the 16th inst. Mr. Davis was the author of "Art and Work," "Rudiments of Decorative Painting," and other works.

THE Southend-on-Sea Town Council have decided to complete the swimming bath on the Western Esplanade at an estimated cost of £7,000.

AN ITALIAN MONUMENT OF ENGLISH ORIGIN.

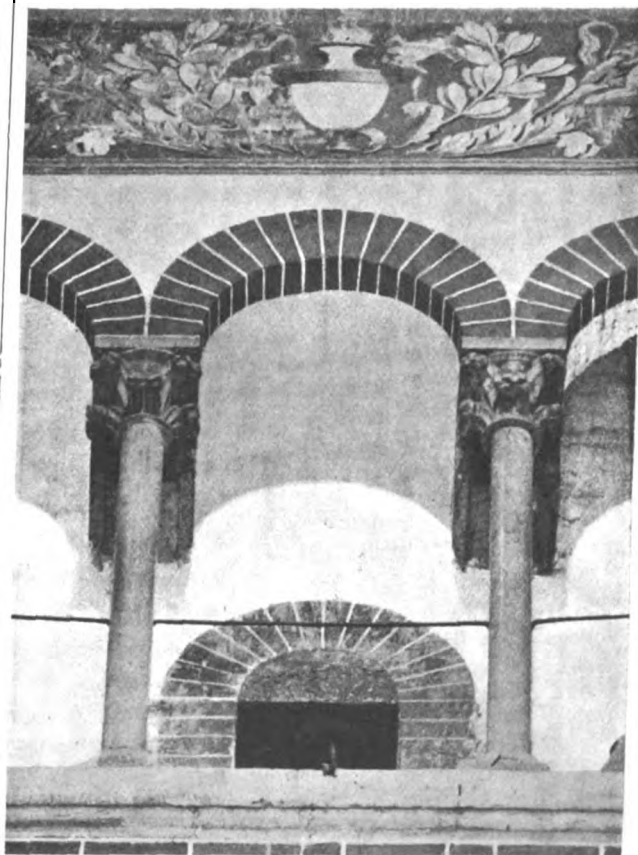
By Professor ALFREDO MELANI.

I.—THE FOUNDER AND THE ARCHITECT.

THE founder of the Abbey and Church of St. Andrew at Vercelli is so closely connected with the architect of this monument that we cannot consider the first without speaking at the same time of the second; we might almost think that here the founder and architect are one person, although we know that this is not the case. The Abbey and Church were founded by a man very highly esteemed at the Court of the Pope—Cardinal Guala Bicchieri or De Biccheriis—who belonged to an ancient thirteenth-century family of Vercelli, and the plans of the monument which Piedmont preserves for the enjoyment of our artistic soul were probably designed by an English architect, Brighinth or Brighintz (John Dominic).

The connection of the Cardinal with the architect seems somewhat strange, and we would wish to explain it. Besides, the artistic relations between England and Italy go back for several centuries. Without referring to Inigo Jones it is sufficient to recall those Roman *marmorai* who, in the time of Cardinal Guala and of the architect Brighinth were employed on the Church of Westminster. Be that as it may, the meeting of the Cardinal and the architect is natural, as we are informed by history that Cardinal Guala visited England in the early years of the thirteenth century. I have said that Guala Bicchieri was highly esteemed; thus, he was called upon to render important services, in his quality of Cardinal, to the pontifical Court. Amongst the services of Cardinal Guala was that of Papal Legate to the Court of King John at a difficult time. On his decease, several powerful vassals, insulted by the late King, were revolting openly, opposing the succession of Prince Henry to the throne and favouring that of the Dauphin, assisted in their revolutionary movement by the French. It appears that the energy and prudence of the Papal Legate in favour of the legitimate succession was triumphant, and the coronation of Prince Henry was solemnised at Gloucester on the Feast of St. Simon and Jude, 1216, with the title of Henry III. This political success brought to its highest point the celebrity of Cardinal Guala, who had for some time been thinking of founding a magnificent church with a monastery for regulars. Naturally, the situation for the foundation was his native place, Vercelli in Piedmont. It has been discovered that the idea of the magnificent church together with the monastery, abbey, and church was not conceived before 1215, the year of the departure of Cardinal Guala for England. This same year the Cardinal had accepted the gift of a piece of land for the erection of the church and monastery (and let us call this monument of Vercelli by its true name "abbey"), which is named after St. Andrew through an old church of this name which used to stand on the site occupied by Brighinth's magnificent building. The gift being accepted by the illustrious founder at the very time of his departure for England justifies the choice of the architect Brighinth, who, it is probable, drew up the plans of St. Andrew and, being at the same time practical and a man of taste, modified his English ideas in accordance with the country in which his designs for the church and abbey were to be carried out. The laying of the foundation stone is given by writers as 1219. Even if the style of the monument is opposed to the acceptance of this date, the pecuniary rivalry of the Kings of France and of England in the construction of the monument, which is sometimes asserted, ought to be judged by evidence which it is perhaps impossible to produce to-day, through the dispersion of the necessary documents. I have no desire to go into the question of the portraits, two old statues in the church which are supposed to represent the King of France and Henry III. of England. This is a matter of pure conjecture, only of use to those who merely

see in St. Andrew a monument English in its architecture and, in part, in the expenses of its construction. For, if the probability in favour of the architect Brighinth cannot be dismissed as untenable, neither can it be admitted and exalted to the high position of a scientific fact. Most diverse judgments are opposed; and it is curious that once again the patriotic ardour which is involved in the question of the paternity of St. Andrew's resembles that of those nationalists who, whether it be in art or in politics, fail to excite the homage of my sympathy. Shall we glance at these judgments? Needless to say, English authors maintain its English parentage, the French only seeing in St. Andrew an example of the French style, whilst Italian authors follow the general mode by emphasising the Italian expression of the Piedmontese monument. Mella, the architect, does not reject the probability of Brighinth's being the architect of St. Andrew's, but the criticism of the monument drawn up by him and the considerations which he left unedited in a manuscript memoir, published in a small edition by his son Edoardo (to whom I am indebted for a copy), puts forward an uncertain and doubtful hypothesis; Gally Knight, in his work, "The Ecclesiastical Architecture of Italy," relates that a Bishop of Gloucester being at Vercelli would have called

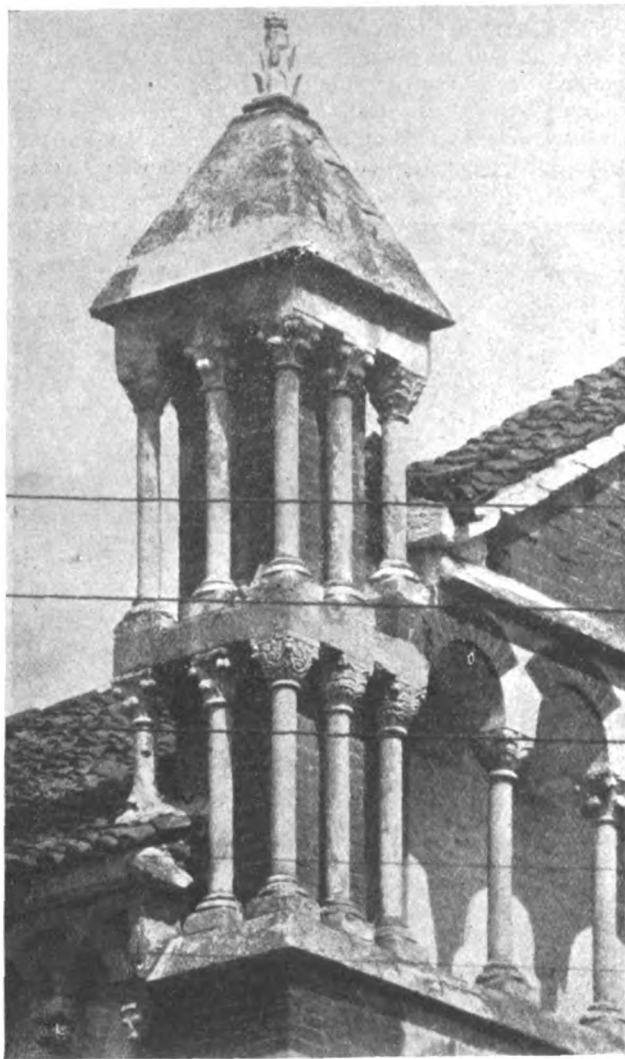


ST. ANDREW, VERCELLI.—DETAIL OF INTERIOR OF LANTERN.

our monument a copy of Gloucester Cathedral; the ancient writer on architecture, Hope, who visited Italy and published a history which in his time was highly esteemed, does not speak of St. Andrew's parentage; whilst l'Enlart, the author of a remarkable work on Gothic Art and the French influence on this style in Italy with respect to England and Germany, after denying the Italian character of our monument, remarks upon the borrowing from French Gothic made by the architect of St. Andrew's, contradictory to my own opinion, as I pointed out the square choir in order to show to some degree the English influence in our church. This l'Enlart opposed as due to the French origin of the choir, recalling its resemblance to the Cathedral of Laon. But there is a German author, Schnaase, who in an historical work, *Geschichte der bildenden Kunst*, is

anxious to give to his own country the honour of the monument we are studying; in the same way, the authors of the *Cicerone*, who are also German, consider the interior of St. Andrew's to be of the purest northern Gothic style, in spite of the Italian preponderance to be found in the distinctive characteristics of our monument, as pointed out by a young writer on art, Marangoni of Vercelli, where the monument, church, and abbey are situated, a monument known to Gruner, the celebrated author of the *Grammar of Ornament*, who perceives the English spirit in St. Andrew's united to the local Italian style.

We will examine these opinions later, or, rather, we will give our personal opinion on St. Andrew's; at present we must notice a curious circumstance which may have influenced the advocates of the English origin of the Italian monument. Each year, on August 30, the



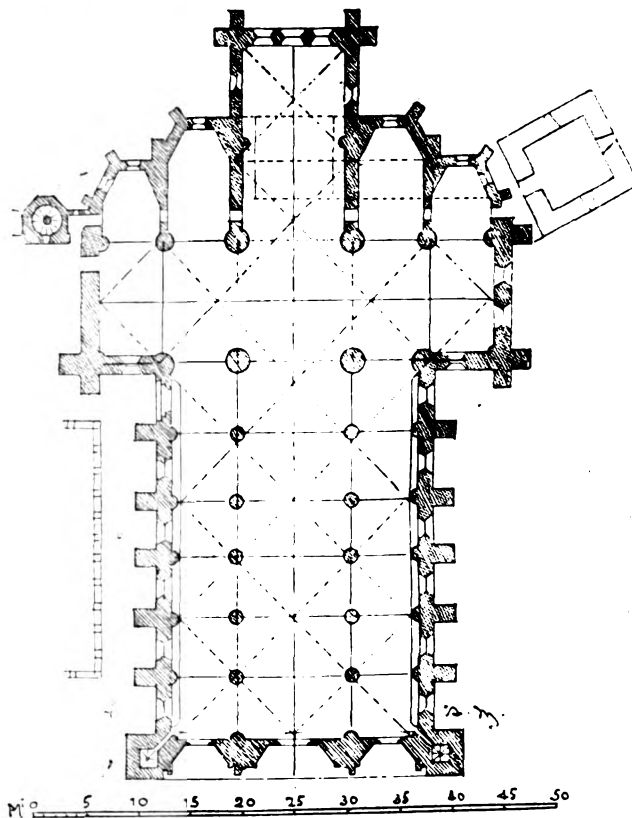
ST. ANDREW, VERCELLI.—A PINNACLE.

anniversary of Dominus Joannes Dominicus Brighinthus (the Latin name of Brighinthus) was celebrated, a celebration which is not explained in the records of the monastery, a peculiarity that does not occur with reference to the other religious feasts in the Abbey Calendar, and this confirms the view that the feast was held in honour of the architect of the church, who, with other persons, would probably have been buried in St. Andrew's. But as the tomb cannot be found, this does not solve the question, though there was a doorway, now destroyed, outside which was a skeleton of which no recognition was possible; the skeleton was thrown away together with the remains of the doorway, at a period when the study of history was not regarded as interesting.

Let us now briefly examine, then, with an open mind, the problem of the Abbey and Church of St. Andrew's.

II.—THE PROBLEM OF THE MONUMENT.

We do not find in St. Andrew's the battlement which gives a special stamp to English Gothic and which is unknown in Italy; though an exception is found in the case of Florence Cathedral or St. Mary of the Flowers, whose super-structure resembles that of the castles in the lower part, and in the projecting arcaded corbelling without battlements. On the contrary, English Gothic does not in religious buildings make use of arcaded, but of dentilled corbelling, which as though they belonged to military architecture, seem a necessary decoration of walls in England. In England also, the more highly developed the Gothic, the more decorative does the battlement become, and in the Tudor style its use is practically general for the crowning of walls, and sometimes is used in their lower parts. In Italy this is altogether unknown; thus the architect of St. Andrew's, who could not erect at Vercelli All Saints Church, Derby, or the Chapel of Henry VII. at Westminster, had to



ST. ANDREW, VERCELLI.—DIAGRAM PLAN.

forego battlements and keep to the straight line—which is the line of the country. This radical change does not, however, extend to the plan, the choir being square, as in England, whilst in our country it is circular or polygonal: and the square choir is truly a characteristic of English Gothic or of the English churches, the explanation of which lies, perhaps, in the use of timber, which is not so suitable for circular choirs as for square. I am fully aware that English critics generally do not admit the explanation of square choirs which I now suggest, but we are not here concerned with discussion as to the true origin of these choirs; and we find the square choir at Vercelli applied on a principle quite different from that adopted in England as to decoration. Immense stained-glass windows adorn the end wall in English choirs, and these walls of glass peculiar to England are found in Italian Gothic, the choirs being, however, polygonal (our principal example is the Cathedral of Milan), but they are not found at Vercelli; that is to say, St. Andrew's, though it possesses a square choir, is not adorned in English style with those immense characteristic windows—all of which goes to prove an adaptation of the architecture of the foreign architect to the traditions of our country which has never had to face difficulties in the construction of

vaults, that led England to make extensive use of visible carpentry.

Thus the architect of St. Andrew's modified his ideas at Vercelli and subordinated his design to the dominant features of the Italian style in St. Andrew's, which possesses a happy contrast of the Romanesque front and side and Gothic interior. This *mélange*, fairly common in Italy, has never been much noticed in St. Andrew's, which passes simply for a Gothic church, as if it were an almost pure model of our style, whilst, if we study the whole, we are surprised at the contrast of which I am about to speak. The Romanesque two-storeyed galleries, the belfries with their elegantly ordered angles, the three doorways, alike in their uniformity, like those on the façade of Siena Cathedral, imbued with the French spirit, seem to favour the idea of French origin rather than English. Indeed, the doorways of St. Andrew's both in their dimensions and their decoration follow French taste, in opposition to English art, which is limited to the strictly practical, and in St. Andrew's the doorways fill the basement. The Romanesque style of the façade forms thus the frontispiece of a true Gothic monument, the vaults which are pointed having the ribs strongly pronounced, and the pillars in a cluster of columns, the whole showing an expressive beauty which offers no doubt as to whether its style be Romanesque or Gothic. This change of style indicates difference of date in the erection of St. Andrew's, and is an alteration which is worthy of our careful attention; it justifies the assumption of two different periods of art, of two tendencies and of the decisive victory in Italy of the pointed arch over the semi-circular. Were there two or more architects? Perhaps, and if the documents were not scattered, some striking new facts might modify the general opinion of St. Andrew's. An English monument in Italy; I ought to say an exotic monument, somewhat English, somewhat French, of English origin, modified by its Italian home, under the influence of French Gothic, to which Italy owes several monuments, abbeys of the Cistercians, the masters of Gothic who introduced this style in its earliest days. This does not, however, exclude Italian collaboration in St. Andrew's, whether in architecture or in decoration, and the pecuniary help of Henry III., who gave a sum of money to Cardinal Guala in 1217, also to the Abbey of Cestreton, or, rather, to the Church of St. Andrew's, the benefactor, in short of the monastery which was about to be built and which was consecrated in 1224 with the church. Though this date is admissible, I cannot vouch for its entire veracity, taking into consideration the short time between the commencement of the church and its consecration, in addition to the difference in style, which expresses the feeling of two epochs—Romanesque and Gothic—as I have already stated.

III.—ITS GEOMETRICAL BEAUTY.

St. Andrew's is one of those churches which are remarkable alike for abstract and geometrical beauty; its construction is based on a system worthy of note. As an architect and critic, I am not greatly concerned with architectural theories; I wish to have an entirely independent imagination, totally untrammelled with schemes expressed in formulæ inapplicable in the artistic world. The facts, moreover, which have been patiently collected far outweigh all theoretical considerations as to the proportions which may have influenced the architect of St. Andrew's. Here we must recall the studies of Viollet-le-Duc, for it is entirely on the work of the celebrated French architect that our Edoardo Arborio Mella relies to trace the proportions of St. Andrew's. Thus Mella discovered the geometrical scheme of this church whose plan we are giving for purposes of graphic and persuasive demonstration. The plan is in general outline only, for a detailed representation is useless for our demonstration; thus the plan should suggest a correct and severe elevation, such as is given in the plan of the proportional scheme discovered by Mella. On the plan, then, the octagon formed by the normal

square under the cupola repeated lower down is the iconographic basis of our church. Nevertheless, this scheme was modified in practice by reason of difficulties of construction, and irregularities crept in. For instance, the two arcades of the parallelogram near the piers under the cupola should be constructed, in accordance with the scheme, of a greater width than the others, but dividing piers have been introduced about the middle of the interval so as to give within a little the same dimension to the arches instead of their being larger than the others. As a matter of fact, equality was not greatly sought for, the larger dimensions of the piers under the cupola having been neglected. Another irregularity is found in the larger dimensions of the arches near the doors. Why? For want of planning? Yet the line of the squares which has no connection with that of the front follows the line of the belfries; which gives a regular appearance to the proportional scheme, even here, where the scheme would appear to be abandoned.

The geometrical form of the plan of St. Andrew's must have been applied also to the elevation. The equilateral triangle, the usual basis of proportions in Gothic churches with reference to height, in this case governs the fundamental points. A scheme of triangles in the interior determines the crown of the vaults, the centres of the piers, the height of the rose window, the triforium, and so on. Thus we cannot claim a poetic freedom of imagination for St. Andrew's, whose structure conforms to a scheme of proportion which attains a success that would not have been surpassed by the use of those optical refinements so dear to my esteemed colleague, Mr. Goodyear. A physical law seems to exist at St. Andrew's and this law to which I have referred is based upon the measurements carried out by Mella, who is a conscientious, though unsystematic, architect, and a connoisseur of high authority on Piedmontese architecture of the Middle Ages.

The church is remarkably interesting also from a decorative standpoint, and I who have in my *Ornamento nell' Architettura* studied the pictorial side of St. Andrew's and its details in which colour plays an exquisite part, have become increasingly enraptured with our monument.

IV.—THE PICTORIAL DECORATION.

Northern Italy possesses an invaluable source of information as to the pictorial decoration of Gothic monuments, and Piedmont occupies a specially high position, thanks to its castles and to this church of St. Andrew's which every decorator in search of an example of a Gothic church ought to know. Some years ago, Gruner, in his *Specimens of Ornamental Art*, reproduced in colour a large part of our decoration, of which the engravings accompanying this volume may serve to give an idea. The painting in St. Andrew's is simple and restrained, covering the piers and vaults; the glazing of red painted on the brick, the friezes which stand out from the light tone of the vaults, have a striking effect; the whole, consequently, attains the highest degree of delicacy. This example of delicate art, and even the architectural lines of St. Andrew's would not perhaps be in the state of perfect preservation in which it is to-day, were it not for the attentions of a restoration society. Indeed, from 1822 to 1830 the church had a bad time of it, being first used as a military hospital and then as a hayloft, until it was at length restored and saved. For this reason even the pictorial decoration has been preserved, though it is recognised that it is not as old as the church. This decoration cannot date further back than the early years of the sixteenth century, and is an example of the zeal of Abbot Gaspare Pettenàti. Some interesting work was carried out in St. Andrew's during the abbatial reign of Pettenàti, beginning with the choir stalls which go back to 1511. The confessional has no connection with the stalls, as it is Baroque work of the seventeenth century which has its own exuberant beauty, and although the difference must once have been remarkable, it is not

now noticeable, as the red brick and vivid colours of the arabesques do not betray the later style of their architectural origin.

It is thus a first-class monument, from whatever standpoint we consider it, without taking into account the mystery of its architect, or rather of its authors. We have limited ourselves to the principal features of the church alone; but if we were to study those portions of the monastery and abbey which are still preserved, the cloister with its small columns in groups of four, and the capitulary hall with its slender columns, the capitals with their wide-spreading foliage, our pleasure would be even greater. In short, a journey to Italy cannot be considered complete, above all for an English architect, if a visit to St. Andrew's of Vercelli is not included in the programme.

R.I.B.A. EXAMINATIONS.

THE Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students who are qualifying for the final examination have been approved:—

Subject VIII.—Design for a Carriage Entrance.—Mr. P. D. Bennett.

Subject IX.—Design for a Bank.—Messrs. H. L. Charles, W. T. S. Foster, E. Fincham, W. R. Davison, J. E. Marchinton, H. E. Crossland, E. R. Frankland-Bell, I. Omar, J. O. Cheadle, E. A. L. Martyn, H. F. Chandler, R. Lone, S. G. Soper, G. P. Stainsby, H. Bagenal, W. G. Knight, J. W. Bull, G. Bennett, A. Nisbet, J. J. Nathanielz, C. H. Wright, H. T. Cooksey, C. H. Woodhouse, C. Ripley, J. O. Thompson, T. T. Jenkins, B. Newbould, E. R. F. Cole, A. Thorpe, O. Newbold, C. H. James, A. Silcock, V. Dyson, L. Foster, R. A. Barber, A. J. Sparrow, H. Andrew, and J. K. Currie.

Subject IX.—Design for a Monument containing one or more Fountains.—Messrs. R. Braine, W. W. Locke, A. S. Burnett, F. Williamson, A. F. Kaltenbach, G. E. Charlewood, H. J. Tebbutt, H. Dicksee, F. A. Adley, F. Jenkins, R. S. Dixon, R. S. Wallace, J. S. Hodges, J. E. Lutyens, B. A. Miller, E. C. Davies, R. H. Philp, A. F. Hooper, J. Macgregor, J. C. Fowell, F. O. Lawrence, and G. Davidson.

THE ROYAL ARCHÆOLOGICAL INSTITUTE.—I.

THE Summer Meeting of the Royal Archæological Institute opened at Exeter on Tuesday, July 22, under the presidency of Sir Henry H. Howorth, K.C.I.E., D.C.L., F.R.S., F.S.A.

The proceedings opened with a reception in the Guildhall by the Mayor and Corporation.

Mr. H. W. Michelmores, the Mayor, said he would first like to express the great sorrow it was to the Bishop of Exeter not to be present, but he had to keep an important engagement, arranged some months ago, which he had been unable to put off. He himself, as Mayor, had the greatest pleasure in extending a most cordial welcome to the Institute on again coming to this ancient and loyal city. It was forty years since their last visit, but the memory of it had been kept evergreen by the fact that the beautiful chain and medallion which he by virtue of his office was at that moment wearing was then presented by the Institute. It had been admired by all ever since that time. Anyone who was then present at the meeting, and was again attending this year, would miss very little of antiquarian interest in the city. The only two losses were the Grammar School, whose site was now the General Post Office, and the old stone bridge across the Exe, which for improved traffic requirements and to meet the suggestions of the R.S.P.C.A. had been removed and replaced by the present handsome iron structure. On the other hand, many things of great interest had been opened out and developed. For instance, there was the old Roman pavement preserved in the ground floor of the new Police Courts; there was the roof of the Law Library; forty years ago the cathedral was in the hands of the builders, and not much could be seen; now it had been most beautifully restored, and afforded a most delightful visit. In various odd corners there are now to be seen old doorways and windows which were then plastered over. The Guildhall was not then in anything like the present state of beauty, it being restored at the late Queen's Jubilee of 1887; the porch carvings were restored under the advice of the Society for

the Preservation of Ancient Buildings. Then they would be able to visit St. Nicholas Priory, which had been recently acquired by the Corporation, and was being restored under the care of Mr. Harold Brakspear, one of the Council of the Archæological Institute. Forty years ago the members had to confine their visits to the narrow radius of a horse's capacity. Now they would, provided all went well, cover half the county in motors. Probably at the next visit of the Institute to Exeter they would cover the whole in aeroplanes or dirigibles. Doubtless there were several English counties offering single objects of greater interest than Devonshire possessed, such as Stonehenge, Bosham in Sussex, or Haddon Hall. But in Exeter they were in the oldest city in the country, one prior to the Christian era. It was the centre of a vast collection of objects of antiquarian interest from the time of the ancient Britons to the present day. In fact, they had in this ancient county of Devon, with Exeter at its centre, the best collection of such objects. The members would each receive as souvenirs a special illustrated album showing some of the places to be visited, an official local guide, a book on Dartmoor, and an account of the borough seals. In conclusion, he would again say that the Royal Archæological Institute was heartily welcome to Exeter.

Sir Henry Howorth, the President, in reply, said those who had been members of the Institute for a long time realised with ever-increasing feeling their privilege in visiting various parts of this incomparable land, which has no match in the world in the matter of local interest. Every English hamlet contained some traditional poetry or historic fact which endears it to the memory. It was not at all surprising that they should wish to plant their feet on the red loam of Devonshire—that county which gathered round it the moors of Dartmoor like a lady's green skirt. Surely Devonshire was itself incomparable among the counties of England, with all its meadows girt with elm-planted hedges, with its beautiful red cows and beautiful red cheeks of the dairymaids, its perfectly lovely buttercups. Then there were all the wonderful churches, with their towers, which, it seemed to him, were better without spires, being in a hilly country. The abundance of manor houses showed that the ravages of war did much less damage here than in other parts. Although the Society had not, perhaps, advanced very much in the matter of archæology since the last time they were at Exeter, they had greatly advanced in methods of exploring archæological puzzles. Archæology was merely a branch of history which it vivified. Its interests went back to the very earliest times. In Devonshire they had wonderful remains. The cromlechs of Dartmoor and the hill forts offered an extraordinary wealth of material which the explorer will have to investigate, and where he will find as much as was found in Dorsetshire. The Romans largely avoided the county; they went in preference to Cornwall and Dorsetshire, where there were mines. The county of Cornwall was one of the very last to be acquired by the English race, and it was here that the Welsh survived longer than in any other part of England. Even then they perished largely by absorption rather than by extermination. The result of this mingling of races was a very remarkable set of men, excellent in every walk of life, who could not be matched elsewhere. In Plantagenet times the Earldom of Devon was possessed by a magnificent family, which supplied Emperors to the East, and were, indeed, the only English stock which had had an Emperor among their children. This family, which did such credit to the country, still lived. In those days England was practically made by the lawyers and the municipalities. The greatest of the lawyers was Glanville—a Devonshire man. Elizabeth, who had the talent of surrounding herself with the really great of the earth, had such Devonshire men as Raleigh, the two Drakes, and Hawkins. Queen Anne possessed the same faculty, and she had Marlborough, who was born in the county, by her. In ways of peace there was a wonderful set of Devonshire men like Coleridge, Reynolds, Sir Humphry Davy, and Adams, the astronomical arithmetician. It was such names as these they would remember when enjoying the hospitality of the county.

FORDE ABBEY.

After lunch a special train took the party to Chard Junction, where brakes conveyed them to Forde Abbey.

The abbey was founded for Cistercian monks from Waverley by Richard, the Sheriff of Devonshire, in 1136. The original settlement was at Brightley, near Okehampton. But within a year or two years of Richard's death the monks became uneasy, and made up their minds to go back to the mother-house. On their way to Waverley they passed near to Forde, and a daughter of the Sheriff persuaded them to

lodge at her house. It ended in Forde Abbey being erected for them. In 1148 the buildings were sufficiently ready for the monks to move in. One of the later abbots spent a very great deal of money on the wonderful buildings. He was, in fact, the last abbot before the suppression. According to an inscription, the porch tower was built in 1528. In 1539 this abbot, Chard, and twelve monks surrendered the abbey, which was worth £374 10s. 6½d. As usual in a Cistercian house, the cloister was placed at the lowest part of the site—here the south side. The church, which lay to the south of it, was destroyed at the suppression. Most of the claustral buildings were incorporated in a house which is said to have been designed by Inigo Jones, and completed in 1658. Mr. Brakspear, who acted as guide, threw doubts on this, as, apart from the fact of the house belonging to a Cromwellian and Jones being a Royalist in disgrace, it was impossible for that architect to have carried out all the work attributed to him, any more than Queen Elizabeth could have slept in all the beds she is said to have occupied. The rectangular chapter-house is stone vaulted in two bays, and belongs to the first half of the twelfth century. Its great size of 22 feet by 20 feet is most remarkable for a stone vault of so early a date as 1145. One peculiarity of it was that it was like a Benedictine and unlike all other Cistercian chapter-houses in being of only one storey. Usually the monks' dormer was continued over it. At Forde it did not do so. Here, too, is one of the few Cistercian abbeys where the zigzag occurs. The long dormer range still exists. The subvault is of the thirteenth century, with some of the original windows remaining at its north end. The original windows of the dormer above remain throughout the west side. In the fifteenth century the frater was divided into two storeys to serve as a frater and misericord. It was in the latter upper storey where those who took advantage of the new rule and ate meat three times a week had their meals, while the strict vegetarian diet was followed on the ground floor.

The house, as converted into a dwelling-place by Edmund Prideaux, Cromwell's Attorney-General, is a remarkable example of the combination of the art of the middle of the seventeenth century with Mediæval work. The fine abbot's hall, built by Thomas Chard, was converted into an entrance hall and panelled. The abbot's lodging at the end of the hall was refitted. The rooms of this block contain much panelling and some handsome plaster ceilings. At the north-east corner of the hall is the grand staircase, with a magnificent balustrade and plaster ceiling, leading to a drawing-room over the original cellarium. This apartment has a coved plaster ceiling, and contains a famous series of tapestries designed from Raphael's cartoons. The legend is that they came from a Spanish ship. Anne presented them to her Secretary of State.

THE NEW REVENUE BILL AND BUILDING.

The following official statement explanatory of the provisions of the New Revenue Bill has been issued:—

The principal provisions of the Revenue Bill are framed to confer exemptions from increment value duty upon builders and others developing estates for building purposes, and upon small investors in land and house property. The Bill gives effect to the intentions of the Government, as expressed in the House of Commons, to make it absolutely clear that no part of a builder's trade profits shall be subject even to the possible operation of the increment tax.

The clauses of the Bill, which frank building estimates from the possibility or apprehension of any claim for duty in respect of trade profits, were settled as the result of a conference between the Chancellor of the Exchequer and the legal representatives of the National Federation of Building Trades Employers, and approved and accepted by them as removing the apprehensions occasioned by the decision in the Lumsden case, and as satisfactory from the point of view of those engaged in the building trade.

As regards houses and shop property and other buildings, in all cases where the value of the building exceeds the value of the site the vendor may have the increase in site value (if any) on the occasion of a sale determined by valuation without reference to the price obtained. No increment value duty will therefore be payable on a sale of such property by a builder or investor on any profit he may make, except as to profits which may arise out of an increase in the value of the bare land apart from the buildings, and which are not due to any expenditure or the execution of any works on his part. A sale of such property at a price above

its market value, or at an increased price due to a rise or recovery in the value of the buildings, will not involve any claim for duty.

The small investor in land or houses whose income does not exceed £160 is wholly relieved from the incidence of the tax in respect of any sale of a property not exceeding £500 in value.

Builders and landowners engaged in developing land for building purposes receive further important concessions under the Bill.

The clauses in the Finance Act which exempt from taxation any increase of value in land attributable to the execution of any works or the expenditure of money by the owner are extended to exempt any increase of price obtained by reason of financial assistance given to purchasers, or by reason of any other arrangement made by the vendor to facilitate sales in the case of land in course of development by a builder or landowner for building purposes, though the value of the bare land may have risen from causes independent of the development of the estate.

No claim for increment value duty will be made during certain periods allowed by the Bill after the land has been prepared for building purposes by an expenditure (e.g. on roads or sewers) equal to the full site of the land, or £200 per acre, whichever be the lesser sum. The land is franked from increment value duty and a certificate of exemption given for a period of five years, and as suitable houses are from time to time erected each building, with its appurtenant land, is further franked from duty for a period of five years from the date of erection.

When these periods of five years have elapsed builders' profits and occasional profits on sale, not due to an increase in the site value, will still be exempted from duty under the provisions of the Bill above referred to.

The valuation roll of agricultural land is to be completed in accordance with the desire of those representing agriculture interests in the House of Commons by the addition of a column showing the unimproved value of the land. For this purpose the valuers are to deduct the value of all unexhausted improvements, such as drainage, embankments, walls, &c., effected at any time within thirty years prior to April 30, 1909. The amended valuation will thus afford a basis for any future legislation to exempt improvements from the assessment of agricultural land for local rates.

Among the remaining sections of the Bill are clauses giving certain relief from reversion duty where land was originally leased on favourable terms for charitable purposes, or where a lease has been extended on the lessee undertaking to effect improvements in the property.

Property owners who have neglected to claim substituted site value within the time allowed by the Finance Act, 1909-10, are given a further opportunity to make the claim if it is in their interest to do so within three months after the "first occasion" on which a claim for duty arises.

THE ARTIFICIAL LIGHTING OF SCHOOLS AND LIBRARIES.

The following is the preliminary report of a Joint Committee appointed in 1911. It has been issued by the Illuminating Engineering Society with the approval of the delegates of the Associations represented on this committee, and published in *The Illuminating Engineer*:—

SCHOOLS.—MEMBERS OF COMMITTEE.

Professor W. C. Clinton, Mr. J. Darch, Dr. W. Ettles, Mr. F. W. Goodenough, Dr. H. R. B. Hickman, Dr. J. Kerr (chairman), Mr. W. R. Rawlings, Mr. T. E. Ritchie, Mr. A. Stokes, Mr. S. E. Thornton, Mr. P. J. Waldram, Mr. R. J. Wallis-Jones (Illuminating Engineering Society); Dr. R. S. Clay (Association of Technical Institutions); Dr. J. H. Vincent (Association of Teachers in Technical Institutions); Mr. E. S. Mortimer (London Teachers' Association); Dr. E. H. Nash (Medical Officers of Schools Association); Dr. N. Bishop Harman.

Ex-officio.—The President (Professor S. P. Thompson), Hon. Secretary (Mr. L. Gaster), and Assistant Secretary (Mr. J. S. Dow), of the Illuminating Engineering Society.

This committee was appointed in 1911, following the discussion of the papers on "Natural and Artificial Illumination of Schoolrooms," read before the Illuminating Engineering Society by Dr. J. Kerr and Dr. N. Bishop Harman in that year. The first meeting of the committee took place on March 7, 1912, when a list of subjects for consideration was drawn up. The terms of reference of the committee included both daylight and artificial illumination, but it was resolved that the latter subject should be dealt with first. There are

a number of investigations which still remain to be pursued in detail, but it was considered that the time was ripe to issue an interim report embodying the conclusions so far reached.

Intensity of Illumination Required.

The intensity of illumination necessary in schoolrooms depends on the nature of the work carried out. In many details further experience is necessary before precise limits can be assigned to these quantities in specific cases.

A distinction might be drawn between the needs of children and the requirements of adults. But inasmuch as the results of working by defective illumination seem likely to be proportionately more serious in the case of children, the committee have considered mainly their needs in making these suggestions. A broad distinction should also be drawn between ordinary clerical work (reading and writing, &c.) and special work (art and metal work, embroidery, &c.). A number of experiments on this point were conducted by the committee, the illumination being adjusted until it appeared sufficient for various classes of work, and photometric measurements then made.

As a result it is suggested that (a) for ordinary clerical work (reading and writing, &c.) the minimum illumination measured at any desk where the light is required should not fall below 2 foot-candles.* (b) For special work (art classes, drawing-offices, workshops, and stitching with dark materials, &c.) a minimum of 4 foot-candles is desirable. (c) For assembly rooms, &c., and for general illumination a minimum of 1 foot-candle measured on a horizontal plane 3 feet 3 inches from the ground. The question of the permissible diversity factor remains to be considered.

It was also recommended, in view of the general recognition of the prejudicial effect on the eyes of children of fine needlework carried on by artificial light, that only coarse work on white material should be executed by artificial light in elementary schools, the minimum in this case being the same as for (a) above.

Direct, Indirect, and Semi-Indirect Lighting.

The committee then proceeded to consider the various methods of lighting schoolrooms. A series of questions relating to the respective merits of direct, indirect, and semi-direct lighting were drawn up and submitted to Mr. J. G. Clark, Mr. V. H. Mackinney, Mr. T. E. Ritchie, and Mr. F. W. Wilcox. The thanks of the committee are due to these gentlemen for the trouble they have taken in preparing answers to these questions and attending before the committee to state their views.

After hearing this evidence the committee took note of the respective advantages of these methods for certain classes of work, but decided that the above standards of illumination should be provisionally adopted irrespective of the method of lighting.

Blackboard Lighting.

The question of blackboard lighting was next considered. Whereas the minimum illumination suggested for reading purposes (namely, 2 foot-candles) might be enough in the case of a small class-room, where white chalk is mainly used, and no students are further than 20 feet from the blackboard, a higher value would in general be necessary in the case of larger rooms, and on boards where it is customary to use diagrams in coloured chalk. By the kind permission of Dr. R. S. Clay, a number of experiments on this point were carried out at the Northern Polytechnic, the blackboard being illuminated with varying intensities and the visibility of figures written in white and coloured chalks examined from various parts of the room. As a result the committee recommend that an illumination on the blackboard about 60 per cent. in excess of that prevailing in the rest of the room is desirable.

As a rule, it would be necessary for the illumination on the blackboard to be carried out by special local lighting from lamps equipped with opaque screens, completely concealing them from the eyes of students. The nature of the surface of the blackboard is also of importance. This should be maintained a dead black sensibly free from regular reflection, so that the maximum contrast between the white chalk and the blackboard may be available, and that there may be no glare due to reflection from polished surfaces. The blackboard should be repainted at regular intervals.

* Four members of the committee, Mr. Goodenough, Mr. Stokes, Mr. Darch, and Mr. Mortimer, were strongly of opinion that the minimum illumination should not be less than $2\frac{1}{2}$ foot-candles.

Avoidance of Glare.

A point of special importance in connection with school-room lighting is the avoidance of glare from the sources of light, and the committee desire to emphasise the value of proper methods of shading. It is a common defect in school-rooms for the bare mantles or filaments to be within the range of vision of students when looking towards the blackboard. The committee recommend that no lamps should come within the solid angle subtended at the eye by the blackboard and a space 2 feet above it, unless they are completely screened from the eye by a shade impervious to light. In general it is desirable that no incandescent surface should be visible to the eyes of students or teachers while carrying on their ordinary work.

Another source of glare is the direct reflection of light from the polished surfaces of the desks or paper. It would be desirable for text-books intended for the use of young children to be printed on matt paper that is sensibly free from prejudicial reflection of this kind.

As a further means of avoiding this defect the committee advocate the use of shades in which the brightness of the source is spread out over a considerable area, and the judicious use of reflection from the walls and ceilings of the room. These should be of such a texture that any considerable regular reflection is avoided, glazed and shining surfaces above the dado being specially objectionable.

Avoidance of Inconvenient Shadows.

In the class-room the lights should be so arranged that inconvenient shadows cast by the body on the desk should be as far as possible avoided. The precautions suggested under the previous heading, and particularly the use of light-tinted surroundings which serve to diffuse the light, may be recommended with a view to softening the shadow. The ceilings should be preferably of a warm white colour, and the walls and all woodwork above the dado should be light in tint.

Conclusion.

The committee offer the above tentative suggestions as a preliminary to more detailed recommendations.

Through the courtesy of Mr. Blair and the Education Department of the London County Council, several school-rooms lighted respectively by gas and electricity have been placed at the disposal of the committee. A number of experiments have already been conducted with a view to demonstrating to the satisfaction of the committee that the present recommendations are practicable, and this report was finally reconsidered after the committee had paid a visit of inspection of the rooms in question.

The wider aspects of artificial illumination and the subject of daylight illumination are being considered, and the committee propose to report on this subject at a later stage.

LIBRARIES.—MEMBERS OF COMMITTEE.

Representing the Illuminating Engineering Society.—Dr. W. M. Bayliss, Mr. J. G. Clark, Mr. J. Eck, Mr. S. Hamp, Mr. Haydn T. Harrison, Mr. Chas. W. Hastings, Mr. B. H. Jenkinson, Mr. V. H. Mackinney, Mr. N. W. Prangnell, and Mr. A. P. Trotter (chairman).

Representing the Library Association.—Mr. H. Bond, Mr. J. Duff Brown, Mr. B. Carter, Mr. Hopwood, Mr. H. Jones, Mr. R. Peddie, and Mr. H. R. Tedder.

Ex-Officio.—The President, Hon. Secretary, and Assistant Hon. Secretary of the Illuminating Engineering Society.

The terms of reference of the committee include both natural and artificial lighting, but it has so far confined itself only to the latter.

The first meeting was held on March 14, 1912, when a list of subjects for consideration was drawn up, and these have been subsequently discussed in detail.

The committee feel it would not be desirable to report definitely on many of these points at the present moment, owing to the developments constantly taking place in methods of illumination and the necessity of fuller information as to their respective merits. It was therefore decided to issue an interim report embodying the points on which agreement has so far been reached.

Amount of Illumination Desirable.

The first question which received the committee's notice was the amount of illumination required. A distinction should here be drawn between the conditions requisite for various classes of libraries, but the following tentative recommendations seem to have a general application, and are in accordance with experience of the conditions met with in a large number of libraries in London.

(1) *Table, desk, or newspaper stand lighting.*—The illumination where the light is being used should in no case be less than 2 foot-candles. This value is understood to apply to reading ordinary type printed on white paper. When books printed in small type, or manuscripts, or surfaces having a low reflecting power are to be studied, a higher illumination is necessary, and a tentative value of not less than 5 foot-candles is suggested.

(2) *Book-case and shelf lighting.*—A minimum vertical illumination on the case or shelf of $\frac{1}{2}$ foot-candle.

(3) *General Illumination.*—A minimum of $\frac{1}{2}$ foot-candle. Local illumination should be measured on the desk, slope, or table where reading is carried on. Measurements of general illumination should be made on a horizontal surface, 3 feet 3 inches above the ground. In all cases the illumination to be expressed in foot-candles.

Avoidance of Glare.

The committee desire to emphasise the importance of adequate methods of shading with a view to avoiding glare from illuminants such as is apt to be trying to the eyes of readers. It is proposed to deal with this point more specifically shortly. Meantime, it is suggested that the light source (e.g. the filament of an electric lamp or an incandescent gas mantle) should not be visible to the reader.

Avoidance of Reflection from the Surface of Paper or Tables.

One of the disadvantages of arranging lights close to a reader is the production of troublesome reflections from the glazed paper or from the tables. The position of lights should therefore be selected in such a manner that no rays are reflected directly off the polished surface of the paper into the eyes. It is also desirable, as a means of minimising this defect, that the source of light should be extended over a considerable area (either by means of suitable methods of screening or by making use of the reflection of lights from white or light-tinted walls and ceiling).

Avoidance of Shadows.

Harmful shadows, particularly those thrown by the readers themselves, should be avoided by suitable arrangement of the lights. The methods suggested under previous heading are also useful with a view to preventing this defect. Since sharp shadows are cast mainly by direct rays from sources of light of small area, the desirability of making judicious use of the reflection from light-tinted surroundings is indicated. In general it is preferable to avoid materials which are very dark in colour and absorb a great deal of light. Shadows are apt to be cast by the heads of readers examining shelves; with a view of avoiding this, local shelf lighting by well-shaded lamps is sometimes desirable.

The committee do not at present desire to recommend definitely any particular system of lighting for libraries, recognising that the purpose for which the library is intended (e.g. whether as a reference library, for casual reading or for lending books, &c.) must be considered. Local lighting and general lighting have both their respective merits, but in general a combination of the two methods is most advantageous. The comparative advantages of direct, indirect, and semi-indirect lighting are being considered, and the question of the best means of illuminating racks and shelves is also receiving attention. The committee will continue to act as a centre for information on these subjects. It is proposed to supplement this interim report by a series of more detailed recommendations, and also by some suggestions as regards daylight illumination.

THE GHENT EXHIBITION.

In connection with the International Municipal Exhibition at Ghent (June to October) there will open on Sunday next a Congress (July 27 to August 1).

This is the first International Exhibition and Congress specially devoted to municipal life in all its aspects.

The subjects to be discussed at the Congress and illustrated by the Exhibition are not confined to town planning alone, but range through all phases of communal life. From such material texts as the proper adjustment of local to national taxation to the ethical and moral as posed by a discussion of the cinema, the problem of city life will be attacked by the delegates.

The Congress and Exhibition has been set on foot at the instance of the Union of International Associations, the permanent office (3 bis Rue de la Regence, Brussels) of which constitutes a clearing house for many and varied

aspects of human activity of international importance. One of its largest sections is that devoted to Municipal Organisation as internationally considered.

Delegates to the Congress comprise representatives of nearly a hundred towns, and they hail from parts of the world so far sundered as Adelaide, in South Australia, to Helsingfors, in Finland. Official representatives from the British, the French, the German and other governments, from national and municipal associations of various countries will attend the Congress.

Interest in the Science and Art of Town Life is now so keen and widespread that an international collection such as the Exhibition of Municipal Organisation presents, and discussions such as the Congress will provoke, cannot but appeal to large numbers of a public now thoroughly aroused to the importance of careful study of our complex urban civilisation.

Among the interesting Papers already promised by delegates to the Congress are the following:—"Town Planning," M. Auguste Rey (Architect to the French Government). "Town Planning and Garden Cities," Mr. Ewart Culpin (Garden Cities and Town Planning Association). "The Federal Capital of Australia," Mr. Chas. Reade (Garden Cities and Town Planning Association, Gray's Inn, London). "The Unification of Municipal Associations," M. Brees (Hotel de Ville, Brussels). "Land Policy of German Towns," Dr. H. Erman (German Land Reform Union), and Dr. Mendelsohn (Director Statistical Bureau, Aix-la-Chapelle). "The Great Public Services in Large Towns," M. Cadoux (President of the Statistical Society of France). "State and Municipal Aid for Housing," Dr. Eindecke (General Secretary for the Rhine Union of Industrial Dwellings). "Municipal Action against Unemployment," M. Louis Varlez, Advocate, Brussels. "Municipal Sociology," Professor Patrick Geddes, St. Andrews University. "Need for an International Office for Centralising Municipal Documents and Municipal Bibliography," Mme. Otlet, Secretary of Central Office of International Associations, and Emile Vinck, Senator, Brussels.

THE PARISH CHURCH OF FONTEVRAULT. NEAR SAUMUR.

THE parish church of Fontevault is dedicated to St. Michael. It was built in the twelfth century, and while much work of this early date still remains, yet so many alterations were



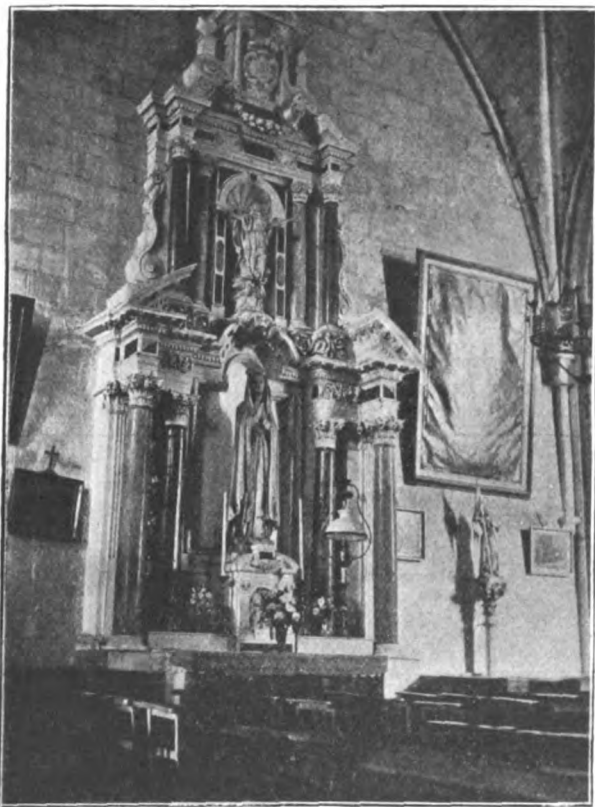
[PARISH CHURCH OF ST. MICHAEL, FONTEVRAULT,—
WEST FRONT.]

made to it in the fifteenth century that the general appearance of the church externally is of this latter date, to which the entrance door and window above it belong. The north side and west end of the nave have a picturesque wooden

lean-to roofed portico, which dates from 1751, and at the north end of this portico there is a good Renaissance doorway. In the west gable there is a narrow lintelled opening, in which two small bells are hung.

The interior of the church is most interesting. It is oblong in plan, and is divided into nave and choir, with a small chapel opening off the nave to the north dedicated to St. Joseph. The nave is of four bays, rib-vaulted, with domical vaults. The vaulting of the east end of the choir gives an apsidal effect, although the east end of the church is square.

There are four elaborate Renaissance altars with reredoses in this church, all dating from the seventeenth century. The one at the east end is the most important. The three divisions of its reredos are formed by eight Corinthian coupled columns, with complete entablature, the cornice of which is carried round a semicircular pediment in the centre, having the altar proper underneath, which is of wood sculptured and gilt, while at the sides there are two niches with statues in them. Of the two altars on the north and south walls of the nave, that on the north is the finer. It is two-storeyed, the lower having marble Corinthian columns with full entablature and broken segmental pediment. In the middle the cornice of the entablature forms a small semicircular pediment, and the statue in the central niche represents the Assumption. The upper storey also has marble Corinthian columns, with entablature and broken triangular pediment, while there is a central niche filled with a statue. Above and appropriately terminating



PARISH CHURCH OF ST. MICHAEL, FONTEVRAULT.—
ALTAR AND REREDOS NORTH SIDE OF NAVE.

the reredos is an attic, which is richly carved. The most highly decorated of the four altars and reredoses is the one in St. Joseph's chapel, but it is much smaller than the principal altar at the east end of the church. Altogether, this church is well worthy of examination, and it should be visited at the same time as the greatly more important Abbey buildings of Fontevault.

The reconstruction of the Tivoli Music Hall, Strand, is about to be carried out under the supervision of Messrs. Wylson & Long, architects, 16 King William Street, E.C.

MR. J. H. FARRAR, who, as a student in the Architectural Department of the Leeds School of Art, gained a National Scholarship, has recently been awarded a Travelling Scholarship for Architecture at the Royal College of Art, and has also just been appointed head of the Architectural Section of the Cambridge School of Arts and Crafts.

THE ARCHITECTURAL ASSOCIATION.

THE Breaking-up Ceremony of the A.A. School of Architecture took place on Friday afternoon, the 18th inst. The proceedings were opened by the following announcement of awards by Mr. W. Curtis Green, F.R.I.B.A., the President:

LIST OF AWARDS AND PRIZES.

DAY SCHOOL.

First Year.

Book prize for first place in History Test paper and general excellence in this subject, W. H. Lloyd.

Book prize for the first place in Construction Test paper and general excellence in this subject, F. P. M. Woodhouse.

A.A. Sketch Book for first place in Freehand Drawing test, W. H. Lloyd.

The Studio Prize: Best portfolio of drawings made during the session, F. A. Eschawzier.

Hon. Mention and authors of drawings selected for school portfolio, G. G. Clank, J. L. Murgatroyd, W. H. Lloyd, D. S. Glover, H. Schien, and J. H. Hopewell.

Special prize for distinction in test papers given by headmaster, N. F. C. Day.

Second Year.

Travelling Studentship, £15, for studio and lecture work during session 1912-13 and general progress, J. Burford.

Specially commended and special prize given by headmaster, A. Stanhope Forbes.

Hon. mention for general progress during session, A. S. Furner, M. T. Waterhouse, J. H. Jacobs, H. F. Gossling, and B. George.

End of Session Study.—Special prize given by headmaster: Study placed first, M. T. Waterhouse. Study placed second, J. Burford. Study placed third, D. C. L. Derry.

Drawings selected for presentation to school portfolio, J. Burford, A. S. Furner, and A. S. Forbes.

Students awarded the Association two-years' course certificate.—J. Burford, with honour; M. T. Waterhouse, with distinction; B. George, satisfactorily; P. Butt, satisfactorily; A. S. Forbes, with distinction; C. J. Brooks, satisfactorily; J. H. Jacob, satisfactorily; A. S. Furner, with distinction; D. C. L. Derry, satisfactorily; H. F. Gossling, satisfactorily.

Third Year.

Travelling studentship, £21, for best work in the year, R. S. Wallace; ditto second prize, books value £2 2s., H. J. H. Dicksee.

Book prize for first place in Test Subject (£2 2s.), R. H. Philp.

Book prize for second place in Test Subject (£1 1s.), R. S. Wallace.

Book prize for greatest progress (£2 2s.), H. J. Tebbutt.

Second prize for greatest progress (£1 1s.), F. A. Addey.

Recommended for the Jarvis Scholarship, value £40, H. J. H. Dicksee.

EVENING SCHOOL.

First Year.

Book prize, value £2 2s., E. A. D. Tanner; second prize, value 10s. 6d., L. Claydon.

Second Year.

Scholarship, free pass to third year, value £15 15s., H. A. N. Medd.

Third Year.

No awards.

Fourth Year.

Travelling Studentship, value £15, D. J. Gordon.

Book prize, value £2 2s., J. B. M. Walch.

Hon. mention, T. W. Dowsett, W. Harkess, H. F. Prynn, H. D. Archer, and A. J. Thompson.

New scholarship for the A.A. Free Scholarship Day School, M. Bryce, of Berkhamsted School.

Mr. Curtis Green then spoke as follows: Now, ladies and gentlemen, I have to perform a pleasant task, and I am glad that it is the first that I do from the chair. I thought that it would have been appropriate for Mr. Horsley to have made this presentation to Mr. Maule, but he is unable to be here, being in Switzerland. The Council and members of the Architectural Association, students, and parents know that nothing which I can say will exaggerate our indebtedness to Mr. Maule for his devotion to the school. You have, Sir, endeared yourself to all of us; every member of the Association thinks of you and speaks of you in terms of affection and respect. You have laid a strong hold upon all of us. For ten years you have directed the education in this school, and built up the first School of Architecture in the country. During that



PARISH CHURCH OF ST. MICHAEL, FONTEVRAULT—VIEW OF INTERIOR LOOKING EAST.

period 375 day-school students have passed through your hands and received the impress of your outlook and standards. Your reward is in the work that they are now doing and the place that you occupy in their thoughts. This little present is no measure of that place: it is merely an emblem about which our thoughts and your thoughts can congregate. They will be pleasant thoughts: on our side of gratitude for all you have done for us, on yours of gratitude for what you have been able to accomplish for the art. Few are allowed to do so much as you have done. May I give expression to the hope of all of us that at the end of a long and successful life you will look back with pleasure at these ten years as a step both in the development of your own career and also in the development of a sound system of architectural education, towards which end we are all working, and the foundations of which you have done so much to lay.

Sir Aston Webb, C.B., R.A., said he had the greatest possible pleasure in speaking in connection with the testimonial to Mr. Maule. Mr. Maule had done what in the theatrical world was known as "making" a part; it was comparatively easy to act a part when once it had been done by someone else. Mr. Maule had to decide the lines on which the teaching of architecture in their school should begin. He would venture to think that Mr. Maule had taken the right lines, and had assured the success of the school. The best testimonial that he (the speaker) could give to it was by mentioning that he had sent there his youngest son, and neither of them had done anything but rejoice at having done so. Mr. Paul Waterhouse had done the same, and in the list of prize winners there were heard the names of many other extinct volcanoes whose sons are coming on and will eventually take their place. He himself was, with Mr. Basil Champneys, the first visitor to the school after it came to Tufton Street, and he had carefully watched it. Mr. Maule possessed certainly the faculty of gaining the affection and respect of everyone and of getting the best work out of the students. He had also other qualities which every master must have if he was to be a success. Of these there were three of the utmost importance. The first was that a master must have sympathy with the boys or young men out of their school hours, know something of their history and of their ambitions. It was impossible to speak with Mr. Maule without realising that he knew everything about the students under him. Nothing could be more dreadful than that a master should look on his students as mere producers of work, for they were human beings, and ought to be treated as such. The second quality was that of collecting around him and then controlling his other masters. A headmaster at a school once said that it was easy enough to control the boys, but that it was quite a different thing to control the masters. Mr. Maule had no such difficulty, for the masters were as fond of him as were the boys. The third quality necessary was that of managing those necessary beings, the anxious parents. Mr. Maule had ever been extremely kind and courteous when parents came to inquire how their sons were getting on, and left them very pleased with the way he looked after the boys. No one could fail to be very much surprised who, on going round the exhibition of work done in the school, would compare it with what was done ten years ago. Mr.

Maule had had a most difficult task in conducting the school, because the scheme of architectural education had undergone an entire change during that time. The go-as-you-please method had been now abandoned. Already the young men had gone far, far beyond what was ever expected or thought possible. When the school was first started individuality in design was encouraged; now the tendency was somewhat the other way. Young men are nowadays encouraged to work together, and not to show their individuality, to learn the grammar of architecture and leave the latter to a later time. He hoped that that quality would always be present in the work of English architects. Mr. Maule deserved well of the A.A. students and of all connected with the school. Nothing would be more delightful for Mr. Maule in the many years they hoped were in store for him than the looking back on the careers of the young men who owed so much to him.

Mr. Paul Waterhouse, M.A., F.R.I.B.A., said he rose as an extinct volcano, glad to have a brief eruption. He would first like to congratulate Mr. Curtis Green on being in the Presidential chair. Some years ago the leaders of the profession used to worry themselves as to whether architecture was a profession or an art. To-day architects might rather worry themselves as to whether architecture was an art or a craft. The second could be learnt, the first could not. Mr. Maule had infused young men with that spirit, without which art was impossible. One had no hesitation in saying that Mr. Maule had been getting out of that school something very closely approaching architects. He had filled those under him with enthusiasm, and with a determination to get on, both for the master's sake and for the sake of their art. In fact, Mr. Maule had filled them with the high spirit of his own life. The school was full of hope for the future. As external examiner he had been struck by the progress made by the students. Here they had a school of the utmost vitality which was likely to lead to very great things in the future, and was actually leading to those great things now.

Mr. Maule was then presented with a pair of silver candelabra, which bore the following inscription: "Presented to Mr. H. P. G. Maule by some students and fellow-members of the Architectural Association on his relinquishing the position of headmaster of the School of Architecture. July 1913."

Mr. Maule, on rising to return thanks, was received with loud and sustained applause. There were, he said, few situations more embarrassing than having to listen to one's own praises. If they were deserved, it seemed almost indecent to trot them out. If undeserved, it was impossible to imagine one's feelings. It was impossible to give up a position such as he had held without feeling it, and it was obvious that anyone like himself must look back on such years all through their life with the keenest interest and pleasure. Without wishing to appear ungrateful, he would like to say that it was not necessary to mark its termination in any such tangible way, because he felt that he had in the affection of the students something more tangible than any present. Without valuing the present the less, he should always accompany the recollection of it with that intangible present from so many old students and those connected with the school. He would like to say one or two things as to



PARISH CHURCH OF ST. MICHAEL, FONTEVRAULT.—SOUTH-EAST TRANSEPT.

the future. One thing he felt very deeply was that a continuation in the success of the school had been secured by the selection of his successor. Or, rather, he should have said, successors, as he coupled with Mr. Atkinson's name that of Mr. Cable and Mr. Potter. During all his ten years at the school he had been extremely lucky, and any success which it had gained was largely due to those who had been working in the school year in and year out, every day and all day. He was particularly glad that Mr. Potter, to whose help and advice the Association owed so much, was still going to help. Results would, he felt sure, be produced which they all would be proud of at the end of the year. The matter of architectural training was still in its infancy. In the past ten years things had changed, and they still were changing. It could not be said with any assurance that a definite procedure had been reached yet. The pupilage system was being put aside. In this country there was not, as there was in France, anything on which to build an architectural educational system. This and that must be tried before any course peculiarly suited to our climate and circumstances could be arrived at. Personally, he did not believe in one country borrowing wholesale from the system of any other. But he did believe that the real aim and essence of any education, no matter what might be its kind or form, was to ultimately fit men to go out into the world to do good work and to develop themselves to the utmost of their capacity and to produce the best that was in them. The ultimate result lay not in the classroom, but in the work which the men trained there will do in six or ten years' time. We in this country were at last commencing to realise that education does not consist in turning out a brilliant student, but in turning out men fit for their future life. In architectural education there was this temptation—that a great deal of the result was to be seen in drawings. Consequently, the measure of that education might be gauged by drawings and not by work. They must guard against any

rivalry of schools in the production of drawings, for it was easy to fall into the danger of producing something merely in order to say "How good," and to beat other schools. In a training such as theirs, where the production of drawings was the sign manual of school work, they must endeavour to keep continually in front of them the truth that the ultimate aim of education was to produce architecture in the work, rather than to produce brilliant draughtsmen for the time being. He was quite certain that the masters would find a body of men more than willing to do everything in their power to maintain the standard which they had endeavoured to maintain in the past at the school. One of the difficulties that he thought they had to contend with was this: there was always a danger that in getting a school like theirs under way they might think of the few and not of the many. What was wanted was not only the education of the few who might be able to follow an education of that sort. They wanted to see it spread all over the country, and the general standard of education raised. Any steps taken to widen the nature and increase the area of systematic education would be beneficial all round. In concluding, Mr. Maule said he would like to thank everyone for their kindness. What had been said by Sir Aston Webb and Mr. Paul Waterhouse might or might not be true. In the school they had endeavoured, as Mr. Waterhouse had remarked, to get men to work for their own sake, and to get them into a system of working whereby they learn to develop their capacity. In education, if men were propped up too much, and too much was done for them, it would be found that when these props were taken away they would fail rather badly. In the school the endeavour had been to make men sufficient unto themselves, to make them not rely too much on what was done for them, and to do things for themselves. Such a method might not produce the best results there and then, but it rendered the students able to carry on good work in the world. Any success hitherto attained had been largely



ENTRANCE TO THE ABBEY, FONTEVRAULT.

from the support of the staff and students in the Architectural School.

Mr. Curtis Green said he wanted to thank Sir Aston Webb and Mr. Waterhouse, both old members and very good friends of the A.A., for being there that afternoon. The Architectural Association was run in the service of architecture by young men for young men; but the source of its being was the older men, and it looked to them, and not in vain, for fatherly interest and encouragement. The Association was unendowed; its strength was the strength of its members, old and young. It was true of the Association to say that the more it changed the more it remained the same. As it grew older it shed its officers, its Council, its last year's men at the school, and these passed on to wider duties and became a source of strength to the Association. New men took their place. Each year the quality of the work done in the school improves, as also the facilities for doing it. Anyone who looked at the work on the walls would be filled alternately with amazement and despair: amazement that it should have dawned upon them to teach the grammar and elements of design, and despair that it was now too late to enter the school themselves. Doubtless when these works are seen more generally there will be critics who will say that this was not teaching the business of architecture. Their reply to that would be that it was only part of so doing; it was introducing the student to the elements of design. Montaigne had a few lines which expressed what might be felt about the work of the school: "The wind about the tower coming who knows whence and whither, could one enjoy its music unless one knew the foundations safe twenty feet below ground line." Those present knew that Mr. Maule had laid the foundations safe, and that his work will be kept up by Mr. Atkinson and his assistants, and that when the wind blows on the tower Mr. Atkinson was building they could enjoy its music. Mr. Green concluded by wishing the students a pleasant and profitable architectural holiday, and by express-

ing a hope that those who were leaving or passing on to the Royal Academy Schools would remember the Architectural Association and would do it a service if the opportunity arose.

THE ROYAL SOCIETY OF PORTRAIT PAINTERS.

WE experienced an unpleasant uncertainty as to what lay before us when entering the Grafton Galleries recently, for an exhibition entirely devoted to portraiture may so easily prove wearisome, so easily prove to be not a feast for the soul, but an olla-podrida nauseating to the epicure.

It was consequently with repetitive sighs of relief that we saw presented to the gaze such an unusually large proportion of work—not merely reputable or good, but of high quality. And though some of the exhibits were cruel in their crudity, yet there was an entire absence of the advanced Impressionist work, such as is sometimes seen. It is true that some few of the canvases are an insult to an intelligent public, such as Miss Airy's "Willie—A Sketch"; the public does not desire oil-colour sketches of this crude class. The same artist's "Mon Ami" is a profile head of a baby, daubed-in in patches. Now, Miss Ashmore's crayon sketches of a little girl in No. 157 and again in "Miss Anne Joyce" are full of esprit, and show in a few lines all that needs to be shown.

In "J. B. Close-Brooks, Esq., J.P.," Mr. Bigland has a very clever life-size and full-length portrait in Court dress. And, speaking generally, portraits need to be life-size to give the greatest satisfaction, Liliputian treatment being only a little more bearable than slight reductions. Mr. Llewellyn's portrait of H.M. Queen Mary, a very small scale treatment of his large Burlington House canvas, is delightful in itself, and pleases us to an extent that the more ambitious work would never attain. And yet again we cannot but regard as exceptional Sir H. von Herkomer's



A STREET VIEW IN FONTEVRAULT.

series of small-scale portrait busts. This clever artist shows to less advantage in his life-size portraits of "J. H. Mawson, Esq., Hon. A.R.I.B.A.," and "The Hon. Hubert Beaumont," though, indeed, there is nothing to cavil at, saving the use of green tints on the flesh. The same defect appears in some of Mr. Greiffenhagen's work, "Mrs. John Phillimore," being truly awful, and "A Portrait in Grey" perhaps no better.

Mr. Oswald Birley has a well-posed and well-painted figure in "Mrs. Russell Martineau," but he is less successful in "The Viscount Downe," an ambitious full-length life-size portrait; the picture gains in appearance viewed from a short distance, and gains even more in reproduction, where we miss the masses of red in the peer's robe, too pronounced upon the canvas. Mr. Harcourt knows how to wield the brush, but in his "Portrait Group" he makes too much of the furniture, and fails lamentably in his perspective.

Mr. H. Hardy in his single exhibit has one of the blue-ribbons of the show; it is good work in every sense of the word, and has a pretty subject in "Miss Mary Fleming." But what is it that Mr. Keith Henderson has been about in "Boyarina Sofia"? Is this a portrait? If so, the lady should not be dwarfed by the standard fruit-bearers; and if it is a votive offering (for indeed we know not which it is or if either), then it is a sorry display. The same artist in "Mrs. Haynes and her Children" provides us with a pre-Raphaelite absurdity.

Contrast Mr. Jack's "Afternoon Tea" with its neighbour, "A Breakfast-room Portrait," by Mr. Harold Speed, all in favour of the latter, with its correct ideas of value in portrayed objects. Other work by Mr. Speed pleases us less. And Mrs. Jopling proves disappointing in this exhibition. Mr. T. B. Kennington has one of the pictures of the show in his portrait of Mr. R. Aves, and his other canvas is also very clever. Mr. de Laszlo has excellent work in his

portrait sketch of Baron H. Schröder; it is worthy of Raeburn. Mr. J. Lavery, A.R.A., is preferable here in "Mrs. Malloch" and "M.M." to his huge Royal portrait group over at Burlington House; "M.M." is as good as any old master's work.

Mr. Leist's "Miss Kong Sing" looks like a porcelain figure. Miss Flora Lion has missed success, though she plucks at the hem. Mr. Logsdail's portrait needs a large amount of modulation in technique. If Mr. Waldo Murray insults the public by his portraits of Mr. W. Barnett and Mr. W. Dyson, he atones in his portrait of Mr. Euston Salaman; and Mr. Nicolet's portrait of his wife should not be passed over in silence. How any artist of Mr. Orpen's standing can exhibit such work as "Sir John Anderson" passes understanding; it is a nightmare of colour. Mr. Hugh Rivière's "Miss J. S. Mackinlay" is very unsatisfactory and affected in treatment; the triple bill does not please.

Mr. Ellis Roberts in "Her Grace the Duchess of Norfolk" has a delightful bust portrait in a delicate style of technique, such as we expect from this artist. But we must give the palm to Mrs. Mary Waller in her two exhibits, "Elspeth Whitaker" being in the highest sense rhythmical; Reynolds or Gainsborough might have been pleased to own this as their work. Mr. W. R. Symonds recalls the eighteenth-century school in his portrait of little Marjorie Pilcher, though it lacks something both of the strength and delicacy of Mrs. Waller's work. Mr. Graham Robertson is truly awful in the corpse-like profile study of Mrs. Arthur Symons.

Nor do we much appreciate Mr. J. S. Sargent's one contribution. But Mr. F. M. Skipworth has one of the blue ribbons in "A Portrait" (No. 80), a lady's graceful head and bust, gracefully posed and charmingly painted. Mr. Fiddes Watt is first-rate in his portrait of "David, Son of

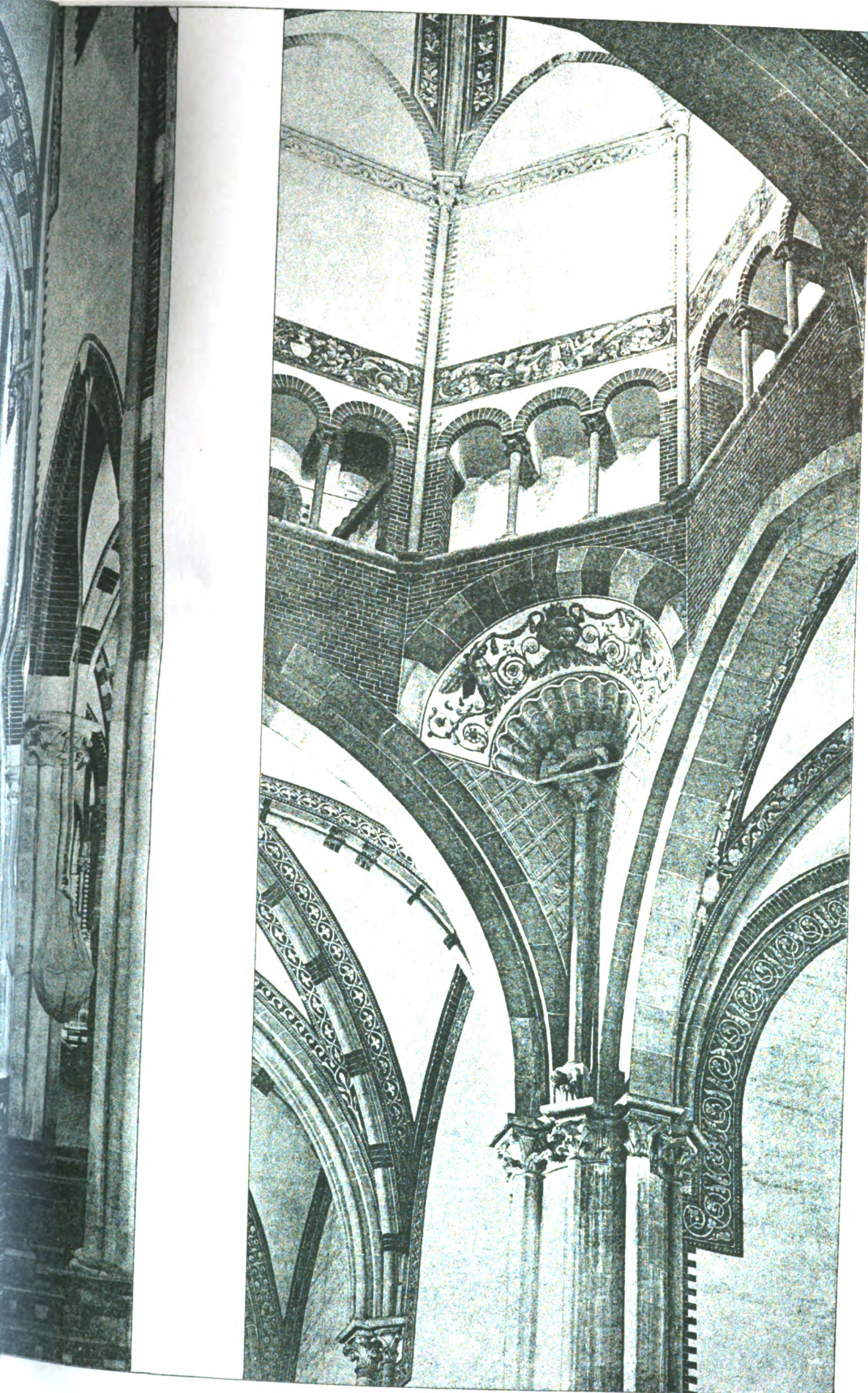
1913.



PHOTOGRAPH BY E. ALINARI

INTERIOR OF S. ANDREA, VERCELLI, PIEDMONT.

The Arch 25th 1913.



"INK PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

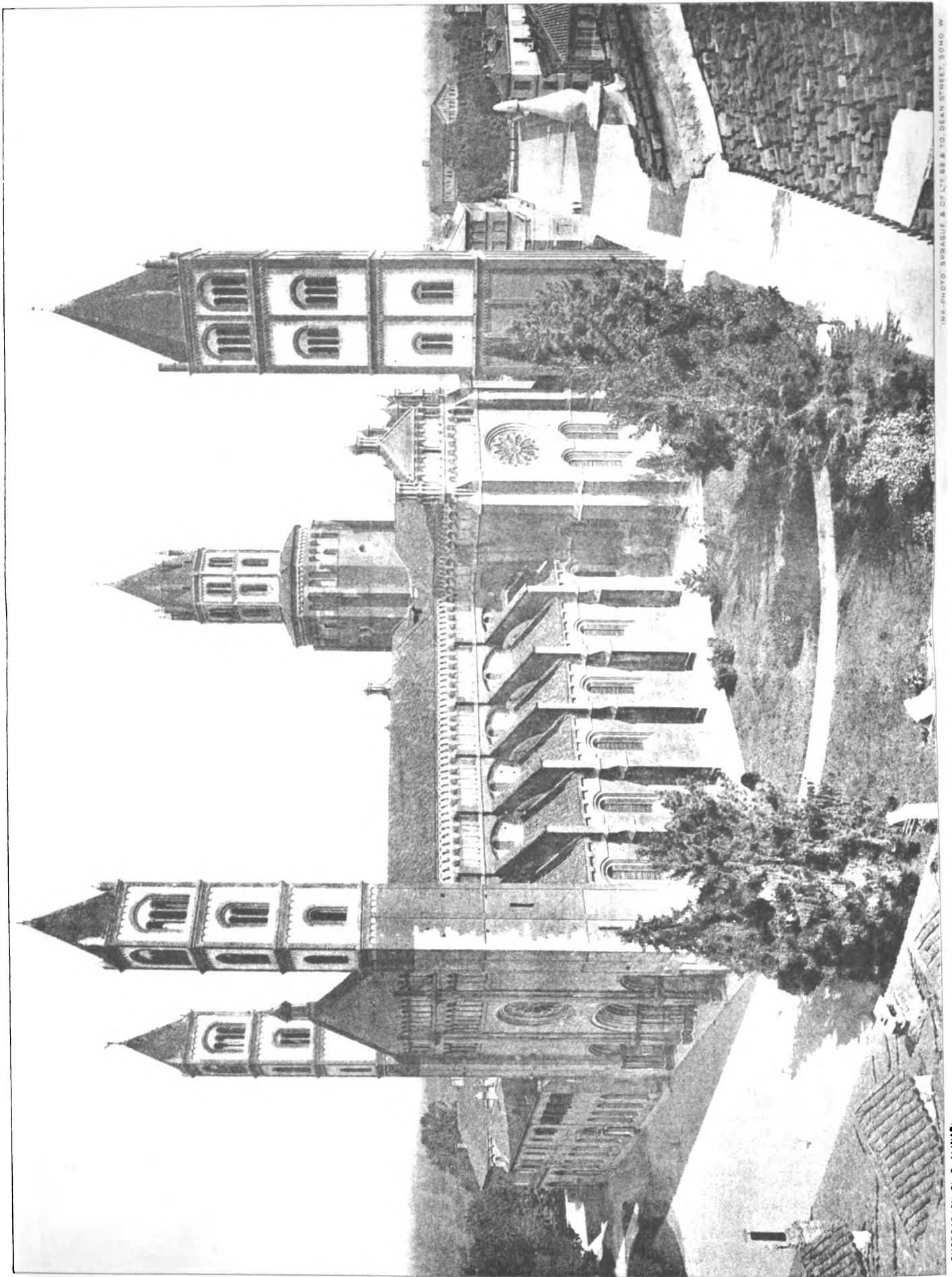
DETAIL OF THE CUPOLA.



PHOTOGRAPH BY E. ALINARI

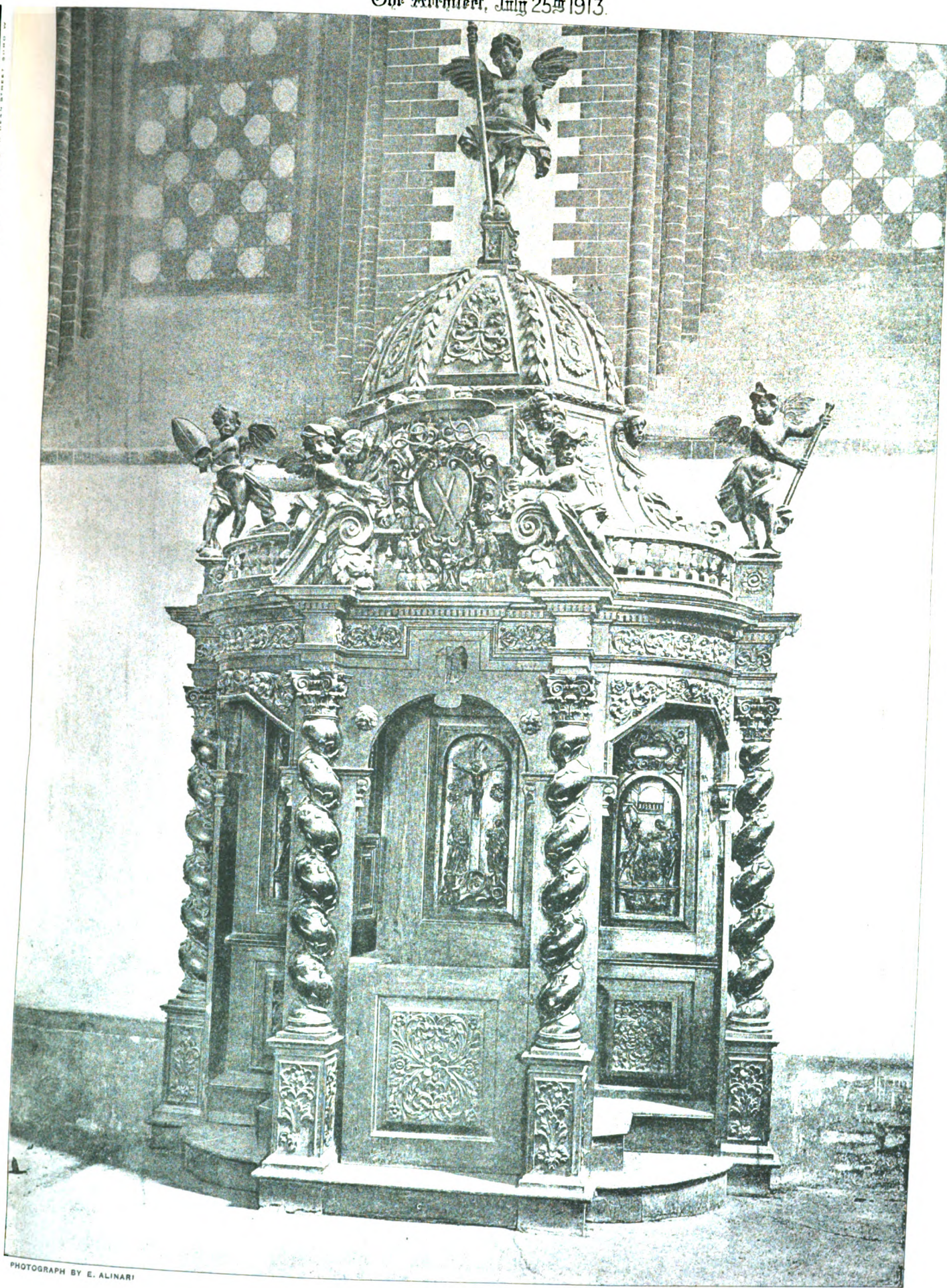
INK PHOTO SPRAGUE & CO. LTD 69 & 70, DEAN STREET, SOHO, W

ENTRANCE FRONT OF S. ANDREA, VERCELLI, PIEDMONT.



CHURCH OF S. ANDREA, VERCELLI, PIEDMONT

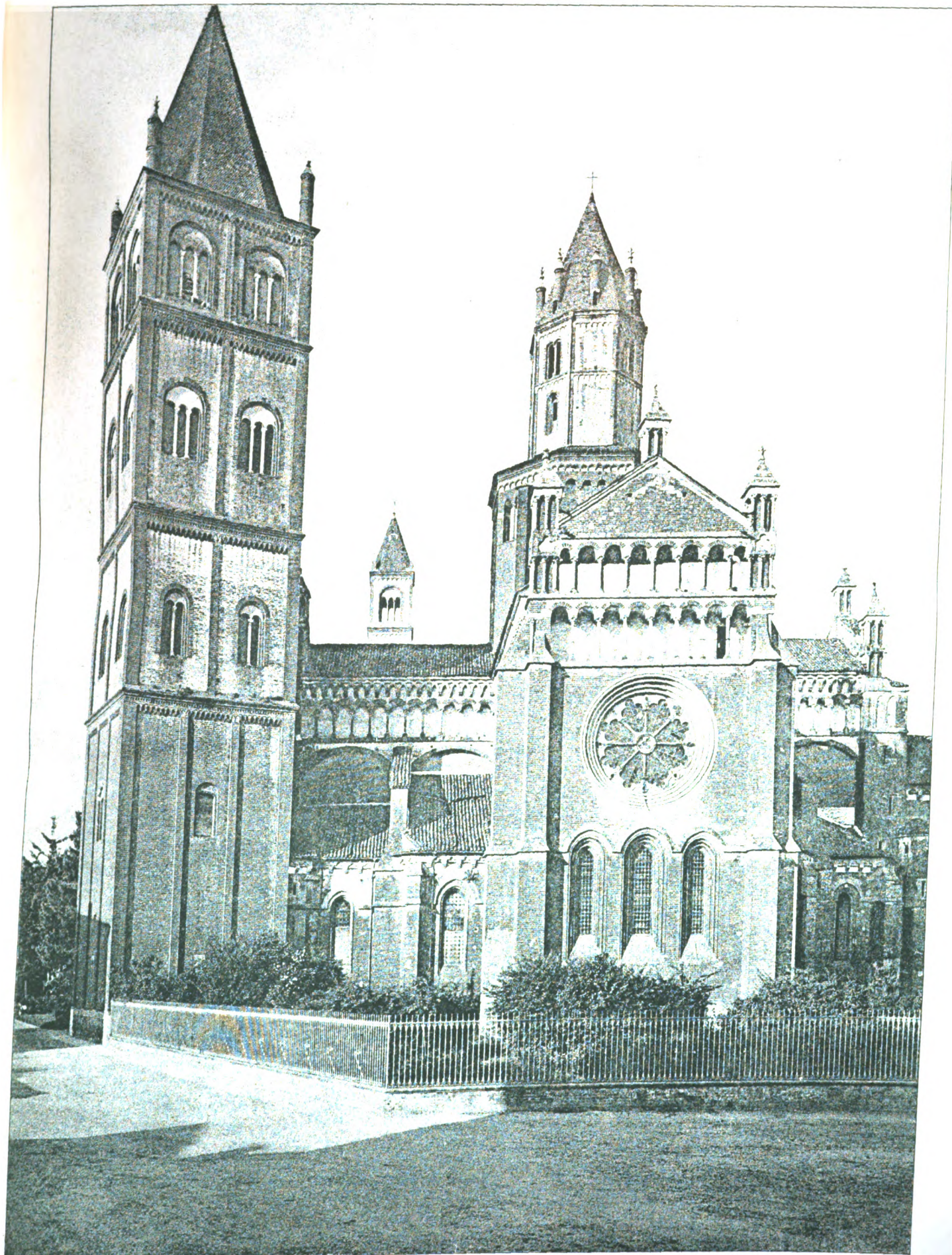
PHOTOGRAPH BY E. ALINAR



PHOTOGRAPH BY E. ALINARI

INK PHOTO SPRAGUE & CO 110 69 & 70, DEAN STREET, SOHO, W

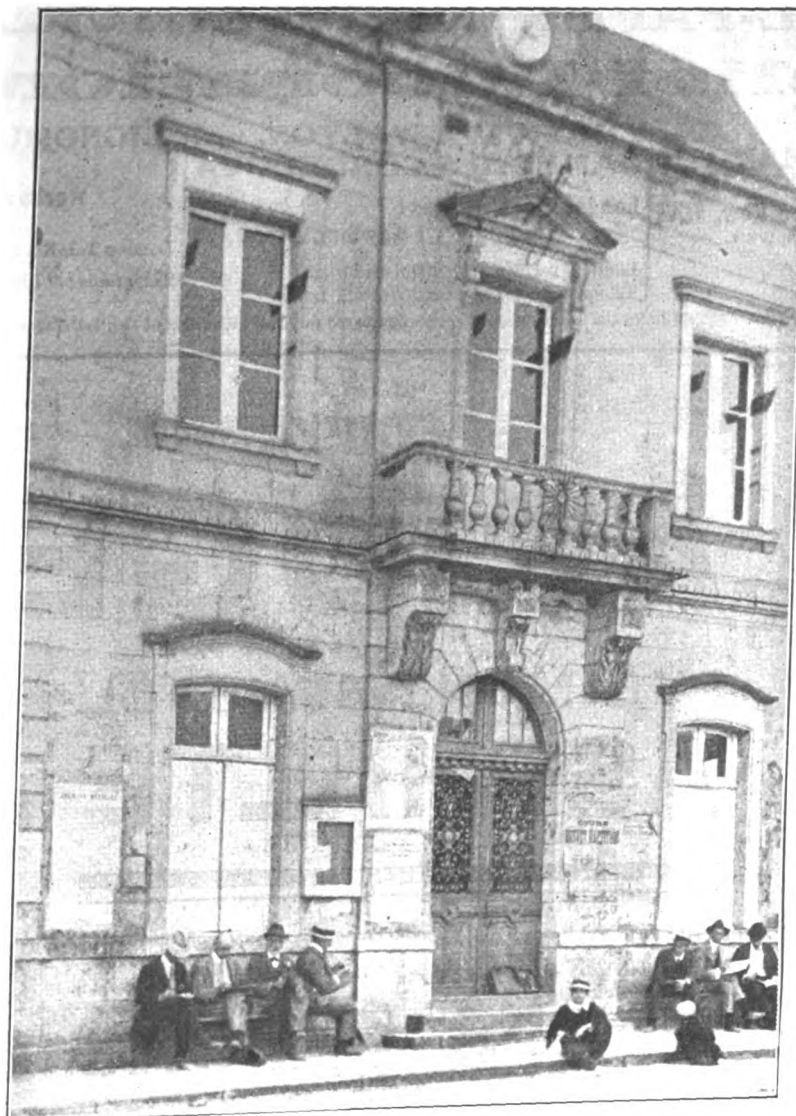
CONFESSIONAL IN S. ANDREA, VERCELLI, PIEDMONT.



PHOTOGRAPH BY E. ALINARI.

INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

CHOIR END OF S. ANDREA, VERCELLI, PIEDMONT.



THE MAIRIE, FONTEVRAULT.

Lord and Lady Glenconner." We must conclude with an expression of our warm appreciation of Mr. Draper's sole contribution, being a portrait of the late Dowager-Duchess of Abercorn, the sole adverse criticism which we would offer being the emphasis in the delineation of the veins in the hand, quite in the manner of Opie; but this portrait and that of Mr. Arthur Fowler, by Mr. Glazebrook, gain two of the blue ribbons, which, in our opinion, are limited to nine of the artists here represented.

EMPLOYMENT OF SURVEYORS FOR THE PREPARATION OF BILLS OF QUANTITIES.

THE Secretary of the Surveyors' Institution has been instructed to forward a copy of the following memorandum by the Council of the Surveyors' Institution for the consideration of local authorities and public bodies to the Clerk of the Lambeth Borough Council, with a request that he should lay the same before his committee:—

In view of the extension of the practice of direct appointment of surveyors by public bodies in connection with the preparation of bills of quantities and of variation accounts for works executed under their control, the Council of the Institution have thought it advisable to draw up a memorandum relating to the functions of a surveyor in this connection and his relationship to the employer, the architect or engineer, and the contractor. In doing so they are influenced by the fact that the surveyor frequently does not come into direct contact with the public bodies employing him, and that the nature of his duties is, to the public mind, somewhat obscure.

The Surveyors' Institution is recognised as the highest authority of the profession, and the Council, therefore, make no apology for drawing the attention of public bodies and

others to the nature of the duties and responsibilities resting upon surveyors who practise in this branch of the profession; more particularly as those unfamiliar with its technicalities cannot appreciate the fiduciary nature of the position these surveyors are called upon to fill. Indeed, the employer, the architect, and the contractor are so largely dependent upon their experience, accuracy, and integrity that it would be impossible to emphasise unduly the necessity for exercising special care and judgment in selecting a surveyor to prepare bills of quantities.

The Council note with satisfaction the recognition of the fact that it is in the public interest to employ a surveyor for the services referred to above. When an architect or engineer is employed in connection with the preparation of the design and the supervision of the work, a surveyor to prepare documents for the purpose of obtaining tenders and to deal with all questions of value, and a contractor to carry out the construction, the employer has at his command expert knowledge in the three great divisions of work thus indicated, and so obtains the best results.

When, however, the practice of inviting surveyors to tender for employment is resorted to, irresponsible persons with little training, knowledge, or experience may quote fees at which they would be ready to supply quantities, but which would be an altogether inadequate remuneration for the amount of detailed work involved in their accurate preparation, and for the responsibility incurred. Such persons may similarly offer to perform the work within an inadequate time.

Bills of quantities obtained by this method are likely to be incorrect, and not infrequently result in serious differences between the parties concerned, and in consequent loss to the employer or the public. While recognising that public bodies invite tenders from surveyors with the best intention, viz. that of guarding the public purse, the Council would

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:
71 Southampton Row, W.C.
Works Tel. No. : 155 Darwen.
London Tel. No. : 2781 Gerrard.
Telegrams { "Anaglypta, London."
"Anaglypta, Darwen."

LINCRUSTA-WALTON, CAMÉOID & CORDELOVA

London Show Rooms:
1 Newman Street, W.
London Tel. No. : 3769 Gerrard.
Telegrams : "Lincrusta-Walton, London."

LIGNOMUR

Works : Old Ford Road, Bow, E.
London Tel. No. : 422 East
Telegrams : "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSEL
ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

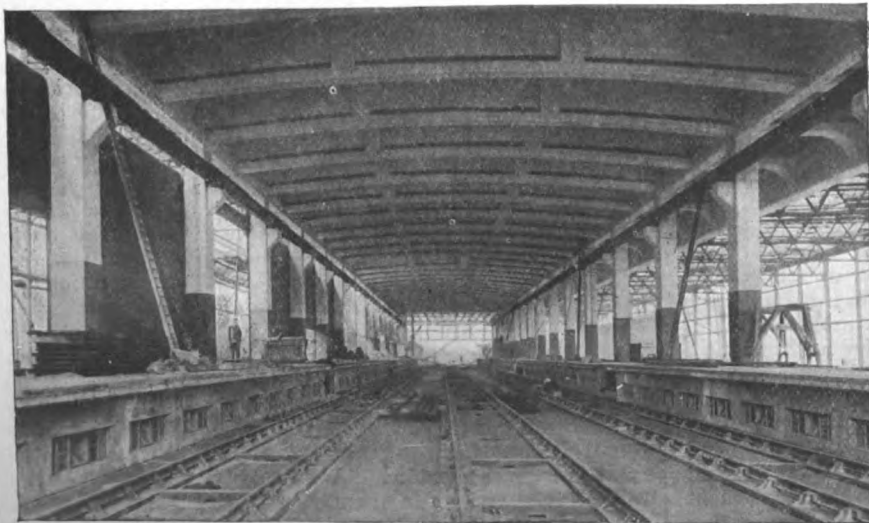
CLARIDGE'S PATENT ASPHALTE CO., Ltd.
21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY—LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all classes of buildings.

They are FIREPROOF,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use in all parts of the world.

Arthur L. Gibson & Co.,
Radnor Works,
Strawberry Vale,
TWICKENHAM.

MANCHESTER:
33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:
79 West Regent Street.

point out that any system by which the financial return for professional work is reduced below the point at which it becomes remunerative to properly trained and qualified men, must tend to lower the professional standard, and so, in the long run, prejudice the public, who unknowingly have to depend so largely on the ability and integrity of the surveyor. The loss occasioned to the public by bad or inaccurate quantities far more than counterbalances the small saving in fees resulting from the system of tender.

The Council greatly deprecate the practice of inviting tenders for the preparation of quantities in respect either of the fees to be charged or the time within which the work is to be completed. Either of these courses appears to them altogether unsuitable as a mode of engaging professional services. They desire to point out that a similar course would not be pursued in engaging the services of a medical officer, a solicitor, or a barrister, although character and experience are no more essential in those professions than in that of a surveyor. They would recommend, therefore, that public bodies requiring the services of a surveyor should first settle under competent advice the remuneration to be paid, and, if circumstances rendered it necessary, the time to be allowed, and then select a person or firm from a list of suitable surveyors prepared to undertake the work. The fees which should be paid and the time required vary widely according to the character of the work, and the Council would, if desired, be willing in an honorary capacity to advise public bodies on these questions in the case of any particular work.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CAMBRIDGESHIRE.

Cambridge.—Council Schools, Newnham Croft (£2,500).
Mr. J. Julian, Borough surveyor.

CORNWALL.

Penzance.—Unionist Headquarters.
Truro.—Besore Farm, Kenwyn: additions, alterations, &c. Mr. J. Davis, County land agent, County Hall.

CUMBERLAND.

Carlisle.—No. 249 Brunton Place: alterations. Mr. G. Armstrong, architect, 24 Bank Street.

DERBYSHIRE.

Alfreton.—St. Martin's Sunday School for 300 places (£1,150).

Hope.—County Lunatic Asylum, Thornhill.

DORSETSHIRE.

Coleridge.—P.M. Chapel. Mr. G. W. Garrett, architect, Sussex House, Wimborne.

ESSEX.

Southend-on-Sea.—Swimming Baths (£8,200).

LANCASHIRE.

Barrow-in-Furness.—Public Baths (£15,900).

Bolton.—Forty-eight houses, Crompton Avenue, for Mr. T. Wood; also

Four houses, off Crompton Avenue.

Two houses, Bennett's Lane, for Messrs. Smith.

Eight houses and shops, Chorley Old Road, for Mr. J. Eccles.

Cotton Warehouse, Holland and Nell Streets, for Mr. J. Smith.

Ilam.—Police Station. Mr. H. Littler, County architect, Ribblesdale Place, Preston.

Liverpool.—Picturedrome, Darrel Street, for Mr. T. H. Hughes.

Picture House, Netherfield Road North and Gordon Street, for Mr. R. Killip, junr.

Picture Theatre, Tunnel Road and Wainwright Street, for Mr. H. P. Reynolds.

Picture Theatre, Paradise Street, for Mr. F. Vaughan.

Picture Theatre, Rice Lane, Walton, for Mr. W. Gordon.

LEICESTERSHIRE.

North Evington.—Workhouse Infirmary: two workmen's cottages (£600).

LINCOLNSHIRE.

Donington.—Parochial Hall. Messrs. Leafe, contractors. 43 Sleaford Road, Boston.

Gedney Grove End.—School House. Mr. E. J. A. Christie, architect, Market Place, Boston; also

Holbeach.—Girls' school.

Kirkstead.—Infants' Council School: alterations (£1,300).

MONMOUTHSHIRE.

Risca.—Cinema Theatre. Messrs. Johnson (F.R.I.B.A.) & Richards, architects, Glebeland House, Merthyr Tydfil.

NORTHUMBERLAND.

Alnwick.—Workhouse: children's cottage homes. Mr. M. T. Wilson, architect, 69 Narrowgate.

North Shields.—Lloyds Banking premises, Howard Street. Mr. J. W. Dyson, architect, 22 Blackett Street, Newcastle-on-Tyne.

NOTTINGHAMSHIRE.

Mansfield.—Council Schools, Chesferfield Road (£12,700).

Nottingham.—Picture House, Trent Bridge (for 800 people). Mr. W. R. Gleave, A.R.I.B.A., architect, 8 St. Peter's Church Walk.

Sutton-in-Ashfield.—Baptist Chapel, Victoria Street (for about 600 sittings). £3,000.

SHROPSHIRE.

Craven Arms.—Wesleyan Church, Corve Dale Road (for about 200 sittings). £700.

Market Drayton.—P.M. Church: School Hall (£700).

Oakenfold.—Technical Institute (£7,000).

SOMERSET.

Bath.—Technical Institute (conversion of premises). Twerton-on-Avon (£1,300).

STAFFORDSHIRE.

Blowich.—Public Baths. Borough Surveyor.

Stoke-on-Trent.—Workhouse: children's hospital (£6,000) and Nurses' Home additions and alterations (£1,500).

SURREY.

Chiddingfold.—Village Hall, Rectory meadow (£1,200). Mr. Pocock, architect, Meslylls.

Croydon.—Thirty-eight houses, Ashburton Avenue, for Mr. W. Nottle.

House, Castlemaine Avenue, for Messrs. D. Young & Co.

Eight houses, Dunbar Avenue, for Mr. P. Richardson; also

Five houses, Ederline Avenue.

Two houses and garages, Norbury Avenue, for Messrs. Chesterton & Sons.

Three houses, Grecian Crescent, for Mr. E. G. Soper.

Three houses, South Norwood Hill, for Messrs. Edwin Evans & Sons.

Two houses, Bisenden Road, for Mr. P. Richardson.

Thirty-two houses, Compton Road, for Mr. C. D. Gooch.

Purley.—House and shop, Brighton Road, for Mr. J. Hicks.

SUSSEX.

Ardingley.—College: new buildings.

Horsham.—Drill Hall and Headquarters for the Territorials.

Petworth.—Twelve working-class cottages.

WARWICKSHIRE.

Birmingham.—Cinematograph Theatre, Slade and Broomfield Roads, for Mr. J. Medlam.

Cinematograph Theatre, Washwood Heath, Ward End, for Mr. A. Burt.

The "Prince of Wales" P.H., Coleshill Street.

The "White Swan" P.H., Grosvenor Street West: alterations.

The "Mitre" P.H., Ledsam Street: alterations.

WILTSHIRE.

Chippenham.—Drill Hall. Mr. R. E. Brinkworth, architect, 16 Old Bond Street, Bath.

WORCESTERSHIRE.

Broadway.—Lifford Memorial Hall (£2,000).

Bromsgrove.—Hospital: tuberculosis patients' accommodation (£1,900).

Croftthorne.—Four cottages for Colonel Ellis Holland.

Six cottages, for Pershore R.D.C.

Fladbury.—Six cottages, for Pershore R.D.C.

YORKSHIRE.

Dodworth.—Urban Council Offices (£1,200).

Elland.—"Rising Sun" Hotel. Messrs. J. Berry & Sons, architects, 3 Market Place, Huddersfield.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

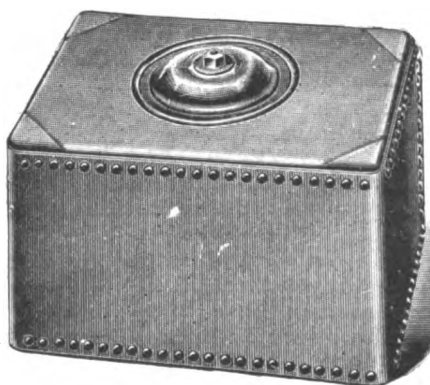
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



**IRON KECS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**



In the Summer Time

smoky chimneys are not much
in evidence—but it is the best
time to fix Sankey's Down-
Draught Preventing Pot. This
will stop the trouble when the
cold and windy weather returns.

Have you had our Booklet on
Down-Draught? You will find
it interesting.

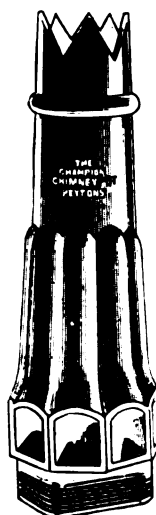
J. H. Sankey & Son,

HEAD OFFICE:

Ltd.

Essex Wharf, Canning Town, London, E.

EST. 1857.



The principal feature of
the **CHAMPION CHIMNEY POT** is
its magnificent updraft.

For many years the
"Champion" has been speci-
fied by **LEADING ARCHITECTS**,
and has sold in large numbers.
Architects speak highly of
its **SMOKE-CURING** and **VENTI-
LATION** qualities, and admit
it to be of excellent design.

Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.
Ltd., 105 Albion St., LEEDS.

Orr's Zinc White Limited

Telegram: "Orr, Widnes."

WIDNES, LANCs.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.**

ZINC SULPHIDE WHITE (Original Patentees).

PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

YORKSHIRE—continued.

Hull.—Emporium, stores, showrooms, &c., Jameson and Brook Streets, for Messrs. Hammond's, Ltd.

Leeds.—Liberal Club-house, recreation hall, and caretaker's house, Bentley Lane, Meanwood. Mr. A. E. Braithwaite, architect, 41 Victoria Road.

South Elmsall.—Congregational Chapel.

Whitby.—House, Smeaton Lane. Messrs. Wilson & Sons, architects.

WALES.

Port Talbot.—School, Aberavon (£3,250). Mr. J. A. James, architect, Plough Terrace. Messrs. S. T. Rees & Co., contractors, Water Street, Aberavon.

SCOTLAND.

Blairgowrie.—Garage, Cleikerinn Street, for Mr. J. Deuchars.

Garage, Perth Street, for Messrs. J. Harper & Sons.

Chryston.—Shop, Chryston Road: alterations into four houses, for Mr. R. Chapman.

Dundee.—Church, Haldane Street: alterations for Downfield U.F. Church.

Semi-detached cottages, Dalkeith Road. Mr. J. R. Anderson, builder, E. Esplanade.

Offices and business premises, Baltic Street, for Mr. T. C. Keay.

Property, Meadow Street: additions and alterations, for the Managers of St. Andrew's U.F. Church.

Dunfermline.—St. Margaret's U.F. Church and Hall alterations.

Shops and Offices, Bonnar and Queen Anne Streets, for Rev. Canon Mullen.

Workshop, stable, and showrooms, Castleblair Lane for Mr. W. Stevenson.

Edinburgh.—Crematorium at Warriston Cemetery, for the Cremation Society.

Royal Infirmary, Lauriston: additions and alterations.

Double villa, Ravelstone Dykes, for Mr. R. W. Millar.

Falkland.—R.C. Church. Mr. R. Fairlie, architect, 14 Randolph Place, Edinburgh.

Glasgow.—Church Hall, Cartvale Road and Carmichael Place, Langside, for Erskine U.F. Church.

Fifteen self-contained lodgings, Lochlee Road. Mr. J. Baxter, builder, Woodhead Avenue, Kirkintilloch.

Pattern-making shop and store, Copland Road, for Messrs. M'Kie & Co. (of Govan).

Works, Smith Street, Whiteinch, for the North British Diesel Engine Works, Ltd., of London and Glasgow.

Grangemouth.—Soap Works, Lumley Street: extension for the Scottish Wholesale Co-operative Society, Ltd. (£2,700).

Inveresk.—Parish Church: improvements.

Kirkcaldy.—Sanatorium: extension for ten additional beds.

Nairn.—St. Ninian Masonic Lodge: temple.

Shettleston.—U.F. Church Hall and Classrooms, Main Street, for Carntyne U.F. Church.

Stonehaven.—Tuberculosis Hospital, near the Isolation Hospital.

IRELAND.

Ballingeary.—Hall for Munster Irish Training College. Mr. D. M. O'Connor, A.R.I.B.A., M.R.I.A.I., architect, 87 South Mall, Cork.

Castleford.—Church Institute and Sunday School, Glass Houghton (£2,500).

Dublin.—Theatre, Henry and Prince's Streets. Mr. F. Bergin, B.E., architect, 36 Westmoreland Street.

Newry.—House and Lodge, Cloghanramer. Mr. S. W. Reside, A.M.I.C.E.I., architect, Margaret Square.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 17,206. July 24, 1912.—Columns formed of reinforced concrete, or reinforced blockwork. H. James-Carrington, A.M.I.M.E., Winchester House, Victoria Square, Birmingham. This invention relates to an improved

method of constructing columns for use in buildings with the object of saving in time and cost, and relates more especially to a class of building construction in which columns or piers are formed of building blocks and a strong central metal reinforcement. The column or pier is constructed of moulded hard-burnt bricks, or blocks of clay, specially selected and graded to possess fire-resisting qualities, or terra cotta, stone, or concrete, and provided with ample clearance round principal reinforcement jointed with cement mortar round the central or principal metal reinforcement; with suitable metal secondary and lateral reinforcements, and all grouted up solid with liquid cement to form a solid column. Fig. 1 shows the general arrangement of a simple column in elevation, which con-

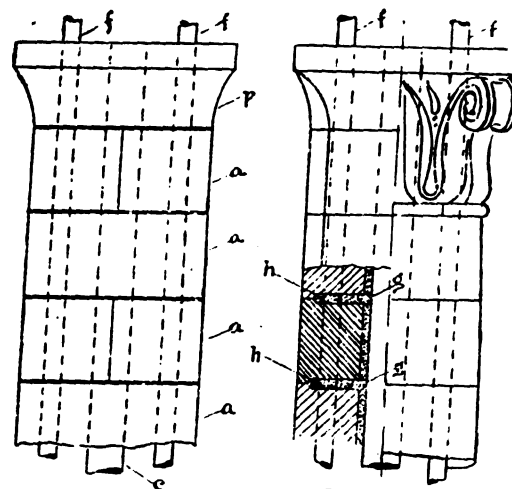


FIG. 6.

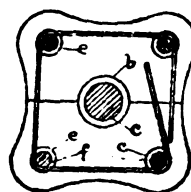


FIG. 2.

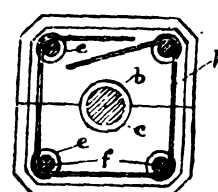


FIG. 3.

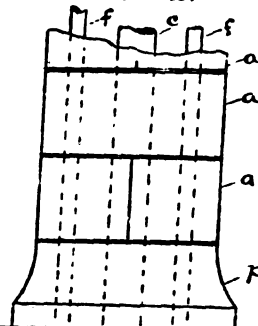


FIG. 4.

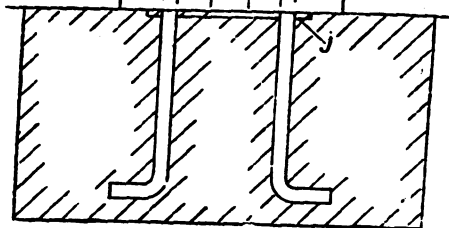


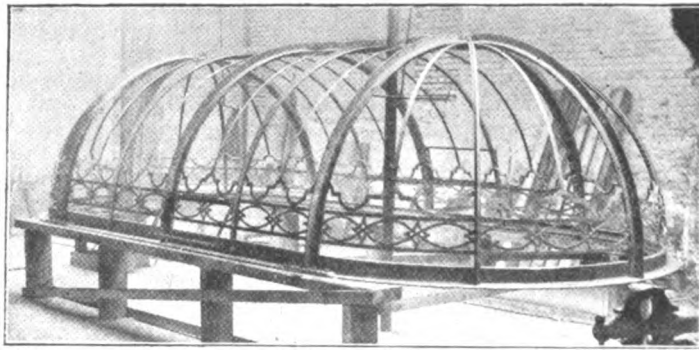
FIG. 1.

sists of a number of shaft-forming blocks *a* made in suitable lengths for convenient handling, and shaped as shown in Figs. 2, 3, or 4, provided with a central hole *b*, with ample room for the principal reinforcing rod marked *c*, and with a number of smaller holes marked *e*, to receive the secondary reinforcing rods *f* with a cavity or frog *g* in Figs. 4 and 6, in which the lateral ties *h* are placed, and bedded in cement mortar to allow for the horizontal joints being kept quite close on the outer face. These shaft blocks are divided vertically for convenient handling, and for building round the central reinforcement. With the shaft blocks in two pieces, they can be built around the central reinforcing rod placed in position first. Figs. 2, 3, and 4 show plans of three alternate shapes of column

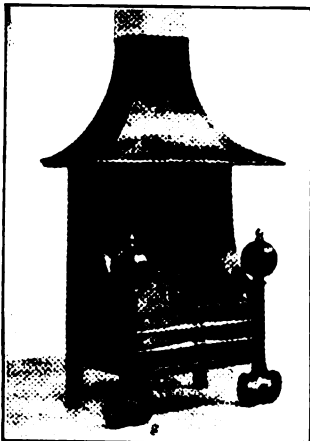
A PAGE OF GOOD METAL WORK designed and produced by



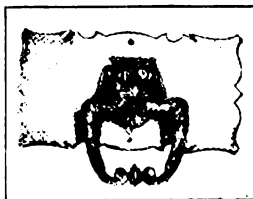
Oxford Street Balcony Railings.



DOME, WOOLLEY HALL.

LIFT ENCLOSURE,
Lloyds Bank, London.

DOG GRATE.



Drop Handle and Plate.



Lead Mask.

AUTUMN
Garden figure, lead.WINTER.
Garden figure, lead.

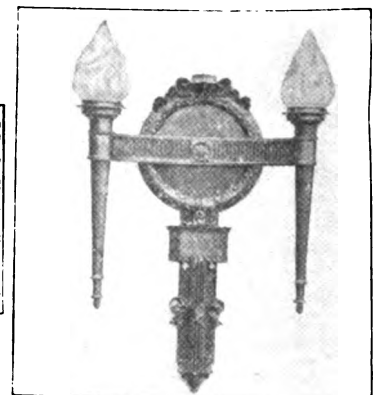
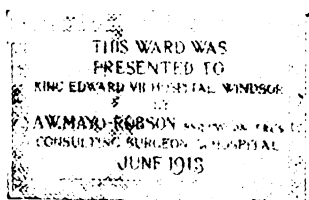
TIME SUNDIAL.



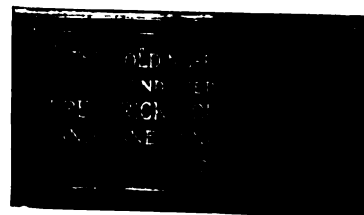
LEAD WALL DIAL.



JAPANESE RAILING.

BRONZE BRACKET,
Waterloo Station Restaurant.Standard
Lamp.

ENGRAVED TABLET.



CAST BRONZE TABLET.

Presentation
Key.

H. W. CASHMORE & CO. *Craftsmen.*

Albert Mansions Studios, 96 VICTORIA STREET, WESTMINSTER, S.W.

Telephones—Offices and Showrooms: VICTORIA 5917. Works: BATTERSEA 415.
WORKS—POST OFFICE APPROACH, BALHAM, LONDON, S.W.

shaft, in which one central rod and four secondary reinforcing rods are used in each case, with lateral reinforcing rods of small diameter, marked *h*, placed in position to receive the outward thrust of secondary reinforcing bars. In Fig. 1 the shaft blocks are all made in one mould, and the shaft is therefore parallel, the cap and base marked *p* also being of one pattern. Shaft blocks can, however, be specially moulded to give entasis, or ornamented, and cap and base may be formed with any ornamentation as required. In Fig. 6 on left-hand side of centre line is shown the cavity or frog *g* to receive the lateral reinforcements *h*.—June 25, 1913.

PATENT SPECIFICATIONS PUBLISHED JULY 17, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 12,433. May 25, 1912.—N. P. Roe, district engineer, G.I.P. Railway, Manmad, India. Weighing machine for materials for concrete.

14,733. June 24, 1912.—Thos. Torrance, J. R. and H. N. Torrance, and Torrance & Sons, Ltd., Bitton Foundry, Bitton. Paint mills.

14,783. June 25, 1912.—Wm. Schmahl, 6 Farringdon Avenue, E.C. Manually operated suction cleaners for the removal and extraction of dust and similar impurities.

14,940. June 26, 1912.—Ludwig Schomburg, 53 Kaiserstr., Gelsenkirchen, Germany. Socket and spigot joints for pipes.

15,065. June 27, 1912.—H. T. Harrison, M.I.E.E., 11 Victoria Street, E.C. Electric ovens.

15,163. June 28, 1912.—Thos. Barty, 82 York Road, King's Cross, N.W. Steam heating apparatus.

16,127. July 10, 1912.—Paul Rolofs, 60 Worringerstr., Dusseldorf. Fireproof roofs.

17,247. July 24, 1912.—Geo. Maurice and L. G. Byng, 67 Queen Victoria Street, E.C. Electric floor lamps.

18,617. Aug. 14, 1912.—Joseph Hall, 63 Royal Exchange, Manchester. Gas-heated radiators.

19,888. Aug. 31, 1912.—R. L. Ross and R. L. Ross & Co., Ltd., Premier Works, Stockport, Chester. Safety valves.

20,320. Sept. 6, 1912.—Arthur Mitchell, Cape Brewery, Cape Hill, Birmingham. Taps or cocks.

20,510. Sept. 9.—Otto Heidrich, Neukirch, Germany. Brick-making machines.

20,665. Sept. 10, 1912.—G. W. Figgins, 88 Charminster Road, Bournemouth. Finger plate for doors.

24,257. Oct. 23, 1912.—F. J. Morgan, "Claredene," Clare Road, Maidenhead. Flushing tank for cisterns.

Any of the above specifications may be obtained from J. D. Roots & Co.



The Centenary Memorial of Sir John Moore.

SIR,—At the last monthly meeting of the Urban District Council of Sandgate a proposal was made to clear away and reuse elsewhere the enclosure forming part of the memorial erected in 1909 to commemorate the centenary of the death of Sir John Moore at Corunna, which was presented to the town of Sandgate. The Council decided to remove certain of the walls, posts, and chains, and to asphalt the shrubbery beds. Inquiry of the clerk to the Council brought the answer that we might understand "that nothing would be done before the next meeting." A letter from members of the Memorial Committee has now been sent requesting the Council to rescind the resolution passed. I send you a copy of this letter, and it is hoped that you will give it your support.—I am, yours faithfully,

MARK H. JUDGE, Chairman.

7 Pall Mall: July 23, 1913.

THE CENTENARY MEMORIAL OF SIR JOHN MOORE AT SANDGATE.

To the Chairman and other Members of the Urban District Council of Sandgate.

GENTLEMEN,—We have heard with surprise and regret that at your last monthly meeting it was resolved to remove the inner walls and posts and chains forming the enclosure to the Sir John Moore Memorial, and to asphalt the beds provided for shrubs.

We desire to call your attention to the circumstances connected with the erection of the memorial and its presentation to the town of Sandgate.

The cost was defrayed entirely by public subscriptions. The monument was unveiled on November 19, 1909, by Miss Mary Carrick Moore, grandniece of the hero of Corunna, the late Sir Edward A. Sassoon, Bart., M.P., presiding on the occasion.

After the monument had been erected, it was felt that some further work to the site was necessary to complete the memorial in a manner that would assure its being regarded as a standing object of esteem. The site needed levelling and to be suitably paved, and plans were prepared for an enclosure of oak posts and chains, with borders planted with evergreens. A further appeal was made to enable the committee to complete the memorial on these lines, and the approval and co-operation of the District Council having been obtained, the work was carried out accordingly.

Upon the completion of the enclosure to the satisfaction of the committee, on July 10, 1911, the following letter from the chairman and hon. secretaries was addressed to Mr. J. Shera Atkinson, clerk to the Council:—

"On behalf of the Sandgate and Shorncliffe Committee for commemorating the centenary of Sir John Moore, we have the honour of writing to ask the Council for the urban district of Sandgate to accept the memorial as erected on the Esplanade, together with the mounted cannon and the planted post and chain enclosure.

"Though initiated locally, the movement for celebrating the centenary of the hero of Corunna, who resided at Sandgate while laying the foundations of the camp at Shorncliffe, soon attracted national support, and it is especially pleasing to refer to the remarkable demonstration of feeling shown by the officers, non-commissioned officers, and men of the several regiments whose predecessors took part in the Peninsular War.

"The committee appreciate the co-operation given by the Council to the movement, and it is felt that the memorial should now be made the property of the town and be placed in the care of the Council."

The Council accepted the memorial on behalf of the town in the following letter from the Clerk:—

"I am directed to acknowledge receipt of the letter of the 10th inst. from the Chairman and Hon. Secretaries of the Sandgate and Shorncliffe Committee for commemorating the centenary of Sir John Moore, which was laid before the Council last evening, and to say that they thank the committee and accept on behalf of the town the memorial erected by the committee on the Esplanade, together with the mounted cannon and the planted post and chain enclosure. They do so with great pleasure, and feel pride in the possession of a memorial of such interest, and will take the greatest care of it."

We feel sure that these facts were not in your minds when the resolution was passed, which, if put into effect, would mutilate a public memorial which Sandgate should be proud to possess, and we trust that this simple statement of the facts will be sufficient to induce you to rescind the resolution.—We are, yours faithfully,

BRASSEY.

J. R. BAILLIE,

E. V. EUSTACE BRYAN

(Brasted Rectory).

F. C. CARR GOMM (V.D.).

H. F. DARELL-BROWN

(Oxfordshire and Bucks Light Infantry),

RICHARD JOHN FYNMORE,

E. GARNET MAN,

J. MARRIOTT

(Colonel, late Norfolk Regiment),

STEPHEN PENFOLD

(Deputy Mayor, Folkestone),

A. E. PEPPER

(Alderman, Folkestone).

LAURENCE C. F. THOMPSON

(Lieut.-Col., late Liverpool Regt.),

ALEXANDER WILSON

(Sandgate Congregational Church),

FREDERICK YOUNG (K.C.M.G.).

MARK H. JUDGE, Chairman,

LEWIS JAS. DRAKE BROCKMAN,

Treasurer.

MAX JUDGE, Honorary Secretary.

Members of the Sandgate and Shorncliffe Sir John Moore Commemoration Committee (1909).

7 Pall Mall, London, S.W.:

July 23, 1913.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarnold, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*



GOLD MEDAL "BELL" GRATES

**BELL RANGE AND
FOUNDRY CO.,**
16 Berners Street,
London, W.
And NORTHAMPTON.

AGENTS EVERYWHERE



Kershaw, Brassington & Co.

(ARNOLD W. KERSHAW & CO.)

LANCASTER & SETTLE

**Ventilator and
Chimney Pot Makers,
Sanitary Specialists.**

Contractors to H.M. Office
of Works and Admiralty.

Prices and Particulars on application.

— THE — Universal Concrete & Construction Co. Ltd.

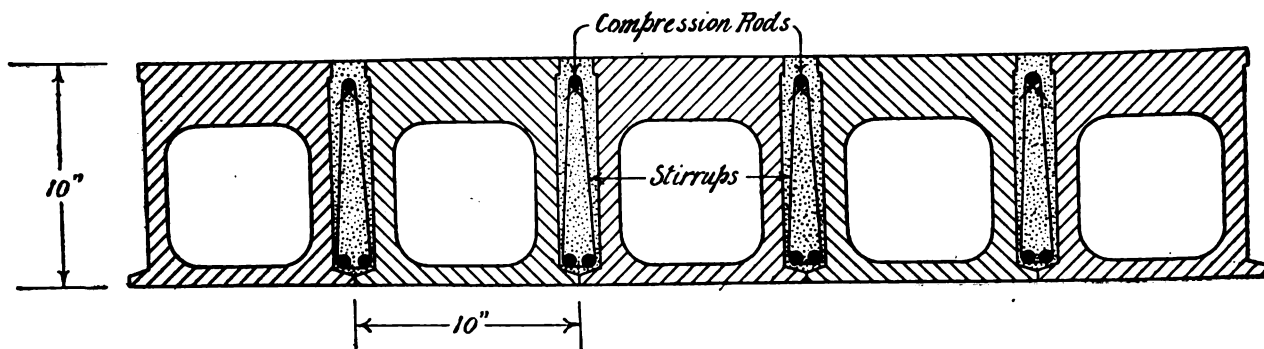
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without Beams projecting below the Ceilings, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
The New Delhi	97
Notes and Comments	98
Cottage near Cork (illustration)	99
The Mall Improvement	100
Competition News	100
Illustrations :—	
Design for Business Premises, Victoria Station, London	100
Balcony Front in Wrought Iron from Paris	100
Design for Hall in Jacobean Style	100
The Royal Archæological Institute (illustrated)	101
Excavations at Glastonbury Abbey (illustrated)	109
Rural Housing	110
Rainham, Wennington, and Aveley (illustrated)	111
Building Progress in the Provinces	117
British Patent Specifications	119
Correspondence	119

FORTHCOMING EVENTS.

<i>Monday, August 4.</i>
Northern Architectural Association : Students' Sketching Club, Annual Excursion.
<i>Saturday, August 9.</i>
Architectural Association : Annual Excursion, depart via Southampton and Havre for Rouen.
<i>Monday, August 11.</i>
Architectural Association : Croisset, Canteleu, Duclair, Château de Quatre Vents, Yville, Sahurs.
<i>Tuesday, August 12.</i>
Architectural Association : Longpaon, Ry, Martainville, Boos.
<i>Wednesday, August 13.</i>
Architectural Association : Montigny, Duclair, Taillis, Quevillon.
<i>Thursday, August 14.</i>
Architectural Association : Bosc Guerard, Clères, Cailly, Grand Tendos.
<i>Friday, August 15.</i>
Architectural Association : Dieppe.
<i>Saturday, August 16.</i>
Architectural Association : Rouen.

THE NEW DELHI.—III.

In the third and final report of the Delhi Town Planning Committee we have their design for the plan of the new Imperial City on the site selected to the south and south-west of the present Delhi, on the basis that an area of ten square miles will be required. This site, it may be remembered, lies between a rocky ridge on the west and the Jumna river on the east, and has a width of about four and a-half miles at its broadest part at the proposed southern boundary, and narrows as it approaches the present town to a width of about two and a-half miles. The point regarded by the Committee as the south-west corner of the site is three and a-half miles from the Ajmere gate of Delhi City, whilst the south-east corner is three and a-quarter miles from the Delhi gate, but the tract southwards of the line between these points is in every way suitable for building and will be available for expansion.

The land lying between the Ridge and the river must not be supposed to be merely a regular unbroken plain with a gentle slope to the south-east, but resembles the conditions that exist in many cases where to-day a comparatively narrow river pursues its course at some distance from its water-shed which long æons ago formed the banks of a wide but shallow and slowly-moving stream with a multiplicity of backwaters and aits.

It is on one of these aits, a rocky hillock at Raisina village, which rises to a level of 750 feet, or about 40 feet above the country immediately surrounding it, that the approximate centre of the building area has been located by the town-planners, and here is the central point of interest in the lay-out, which gives the motif of the whole, the group of buildings comprising Government House, the Council Chamber, and the large blocks of Secretariats in which the members of the Governor-General's Council administer the great departments of Government. This Governmental centre, so placed, commands views of the new city on every side, and is viewed by all the inhabitants thereof. There is a wide outlook over its demesne—ridge, river and plain, the Delhi of to-day and the Delhis of the past.

To the east of the Governmental centre, and below it, will be a spacious forecourt defined by trees, which, it is suggested, might be adorned by fountains and contain decorative features emblematic of the various provinces of the Indian Empire. Eastward still of the forecourt will be a great main avenue or parkway which leads to Indrapat, the site of the oldest of all the Delhis, and the river with a lake or broad to be obtained by a proposed riparian treatment.

Westward of Government House would be its gardens and parks flanked by the general buildings belonging to the Viceregal estate. Beyond these again, on the Ridge itself, would be a spacious amphitheatre to be made out of the quarry from which much of the stone for roads and buildings may be cut. Above this, and behind it, will lie the reservoir and its tower, which will be treated so as to break the skyline of the Ridge. In this way is laid out the main ceremonial and stately axis of the plan.

Across this main axis, and at right angles to it, will run the avenue to the railway station. This will terminate in the railway station, the post-office and business quarters at its northern end, and in the cathedral at its southern extremity. At the railway station a *place* will be laid out around which will be grouped the administrative and municipal offices, the banks, the shops and the hotels. On this *place* the post-office is placed in symmetrical relation to the railway station, and so we have here the principal ganglion of the business and commercial life of the new capital. The position of this centre is about mid-way from the present town of Delhi and the new Governmental centre, and from it radiate no less than nine main lines of communication to both the old and the new city, besides the main axial avenue, which is intended to form the processional route from the railway station till it meets the main east and west axis from the Governmental centre to Indrapat. At the point of intersection is planned a *place* round which will be gathered the buildings of the Oriental Institute, the museum, the library and the Imperial Record Office, which will form what may be termed a centre of intellectual interest. As an alternative a longer processional route can be used as the city develops, which will lead out from the Delhi gate of the Fort past the Delhi gate of the city, through the city park, south along the area occupied by the residences of the Indian chiefs and nobility. Before it reaches Indrapat it will be deflected to a commemorative column in the main parkway which goes west from Indrapat to the Governmental centre. The procession past the villas of the chiefs with the views of the Jumna and Indrapat will combine to make this route one of peculiar interest.

The river Jumna shows a tendency to recede westward from the town of Delhi, leaving a low-lying area called the *Bela*, which is subject to floods and prejudicial to health. It is, therefore, a wise recommendation of the Committee that a scheme of river improvement and water treatment, which they show on their plan, should be undertaken to provide for an improved

and healthier river frontage from Wazirabad, above the existing town, to a point below Indrapat.

In the Committee's scheme of river treatment a lake or broad is to be formed which terminates the vista of the main axial parkway and converts Indrapat into a peninsula.

A first glance at the lay-out of the new Delhi as proposed by the Committee suggests that there has been some yielding to a temptation for pattern-making, but the more closely we examine the detail of the disposition the greater is our admiration for the comprehensiveness of the foresight that the Committee have displayed in providing for the various necessities of an Imperial Capital City, for the amenities of life therein and for the effectiveness of the *mise-en-scène*. The new Delhi, notwithstanding a variation during the seven months' residence of the Government therein, from a maximum shade temperature of 105 degrees Fahrenheit to a minimum shade temperature often approaching freezing point, will be, as far as circumstances will permit, healthy and pleasant to inhabit, beautiful and stately to regard.

The lay-out is not the only object of concern to the town-planner, and the Committee's final report deals very fully and minutely with the recommendations they feel it desirable to make in respect of: (1) Water-supply and irrigation; (2) Storm-water drainage; (3) Sewage system and refuse destruction; (4) Communications: (a) Railways, (b) Roads—their construction and surfaces, (c) Tramways, (d) Diversion of traffic, (e) Through traffic routes; (5) Parks and open spaces; (6) Arboriculture; (7) River treatment and water effects; (8) Future development.

The water-supply of new Delhi, both for domestic use and for irrigation, is to be obtained from the Jumna, the storm-water is to drain into it, whilst the sewage is to be dealt with by an irrigation farm on the *Bela* south of Indrapat. An interesting point about the sewerage system is that it is proposed that both drains and sewers should be maintained and periodically flushed at the public cost. The railway service of Delhi is to be improved by provision for running into the new terminal station every passenger train which will arrive at Delhi, whether on the broad gauge or metre gauge. The avenues and roads of the city are intended to be planted with trees, and in the wider avenues there will be streams of running water. The Committee recommend that all carriage-way surfaces should be asphaltic macadam. The Committee attach great importance to the provision for new Delhi of not only large parks but also smaller recreation grounds of every description, and they recommend that at least one acre for every ten acres of gross land developed in the areas intended to be allotted to minor officials should be devoted to open spaces as well as in other areas.

These reports of the Delhi Town Planning Committee will, we are sure, in the future become classics amongst the literature of the science and art of town planning, and no future student thereof will be able to omit them from his careful consideration.

NOTES AND COMMENTS.

THE solution of the problem of Rural Housing is not yet in sight, though its urgency is impelling many self-constituted and enthusiastic reformers to the enunciation of a panacea which each thinks will straighten out all the creases. No attempt at a solution should ignore the distinction between "rural" and "agricultural" housing. The most insanitary conditions and the worst overcrowding occur in colliery villages, particularly in the North of England and in Scotland, where one-storey back to back houses abound.

The miner, as a general rule, can afford to live in a better house than contents him, so long as he has money to spend on whippets, racing pigeons, and football matches. The farm worker cannot afford to pay an

economic rent for an up-to-date cottage with modern sanitation and amenities, the cost of which has hugely increased beyond that of the "but-and-ben" that sufficed for past generations, by reason not only of the enhanced cost of labour and materials, but through the requirements of the local by-laws, the medical officer, and the council surveyor.

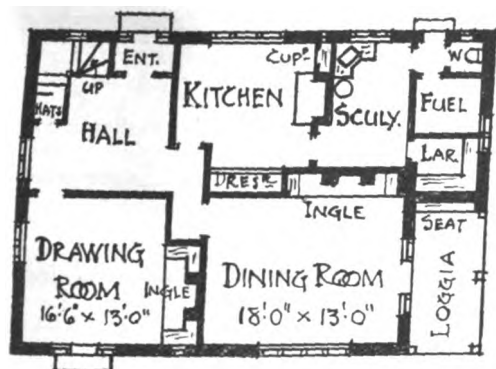
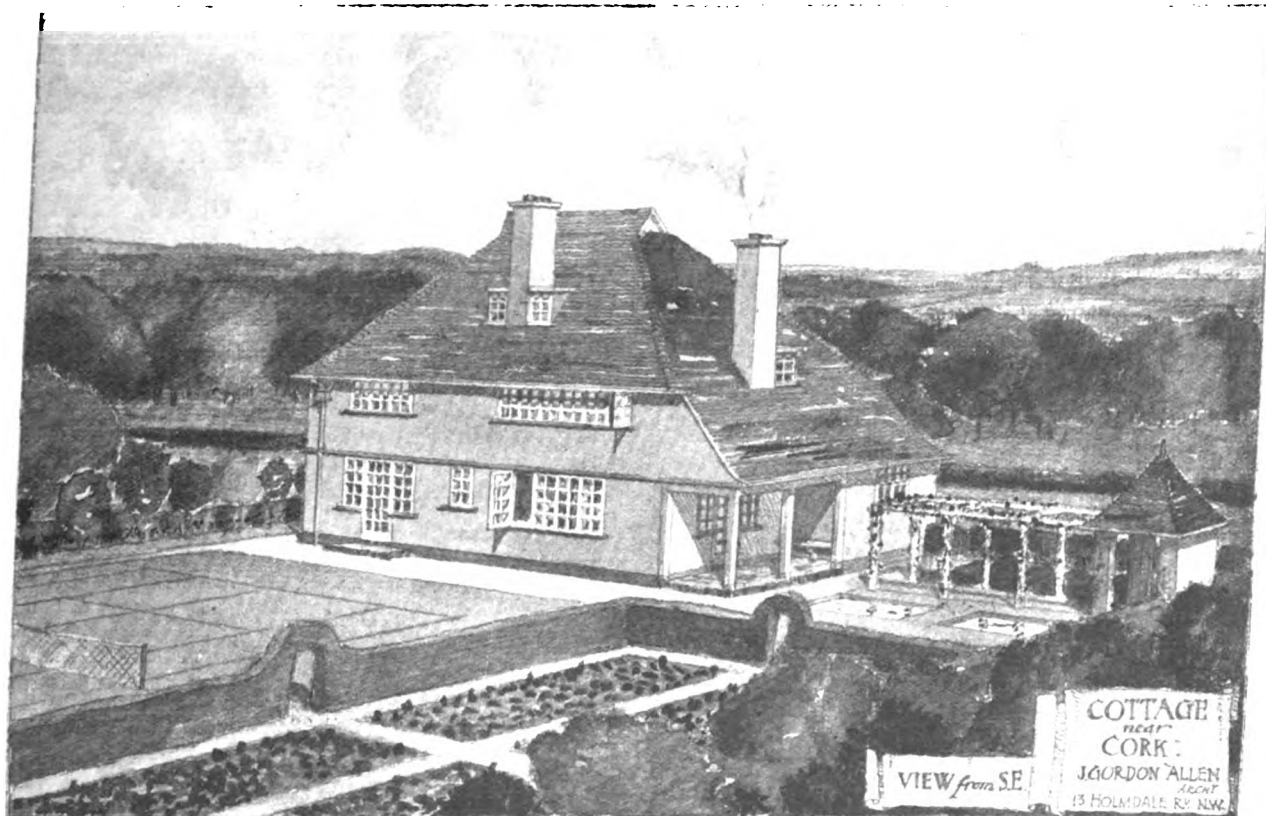
That was recognised by the circular letter from the Local Government Board issued in August, 1912, in which local authorities were urged to review the requirements of their by-laws, "so that, while prescribing reasonable provisions with a view to securing stability, protection from fire, and conditions essential to health, they should not be unduly restrictive in regard to the erection of small dwelling-houses." Cost has been prohibitive, not only to landowners, but also to public authorities, who were empowered to build under the Housing Act of 1890. In the course of fifteen years down to the end of 1905 the total sum of £10,300 was lent to five rural district councils for this purpose. Since then down to the end of July, 1912, loans to twenty-five councils to the total amount of £95,646 had been sanctioned. Out of this amount £58,886 belonged to the period subsequent to the passing of the Housing and Town Planning Act, which has been followed by a considerable increase of activity. But the amount of housing thus accomplished is very much less than the amount of unhousing under the same Act. It appears from the returns that the number of houses closed or demolished amounted to 2,455, while houses built or to be built only mustered 315. This is not all that has been done, because several thousand houses have been repaired and put in order; but a deficiency of cottages is not likely to be made good by pulling down eight times as many as are built.

As far as the agricultural labourer is concerned the science of public health has outrun the resources of agriculture. The National Land and Home League, who, as we record elsewhere, have presented a memorial to the Prime Minister, put forward as their panacea the increase of the farm-worker's wage to such a figure as will enable him to pay an economic rent for an up-to-date cottage, and they regard the practice of grants in aid, which they advocate, as merely a temporary expedient.

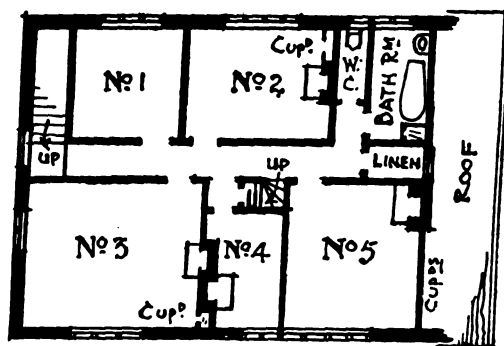
Mr. St. Loe Strachey has shown, what is to our readers perfectly well-known, that, untrammelled by by-laws, it is possible to build a good, healthy, up-to-date cottage for £150, and he suggests that a landlord could afford to let such a cottage for 2s. 6d. a week, the tenant paying rates. But the farm labourer, with a wage of fifteen or eighteen shillings a week, cannot afford to pay half-a-crown a week and rates. The farmer, if he raises his labourer's wage, cannot afford to pay his present rent, rates, and taxes, and the landowner, if he has to reduce the farmer's rent, cannot afford to build £150 cottages and let them at half-a-crown a week.

The crux of the whole problem of agricultural housing is that agriculture to-day, in England, cannot get enough out of the land to house the farm-worker in what we now consider to be a comfortable and healthy home. It is useless to imagine that the problem can be solved by a transference of the ownership of the land either to the farm-worker, the farmer, the rural councils, or the State. As long as the desire for cheap food so regulates our economic system as to keep down the profits of agriculture to their present level, so long will it be impossible to provide the farm-worker with the home that we all believe he ought to have, unless the State subsidises British agriculture in some way or other.

We may feel satisfied that the Admiralty Arch imbroglio has been cleared by the joint committee of the Office of Works, the London County Council, and the Westminster City Council, whose scheme for purchasing the block of buildings at the south-east end of Cockspur Street up to and including Messrs. Andersons' premises, will allow of an adequate approach and permit the



GROUND PLAN:



BEDROOM PLAN:

authorities concerned to impose conditions in dealing with the surplus land, and to ensure the erection of buildings with approved façades.

We are not disposed to place implicit confidence in the unison of the committee which is engaged in examining the fabric of St. Paul's Cathedral and considering methods of strengthening the foundations and composed of the following gentlemen:—Mr. Horace Darwin, acting on behalf of Sir John Wolfe Barry; Mr. Mervyn Macartney and Mr. W. D. Caröe, architects; and Sir Francis Fox and Mr. R. C. H. Davison, engineers.

The death of a passenger on the City and South London tube may perhaps excite apprehension, in view of the medical evidence at the inquest that the cause of death was asphyxia, partly induced by the bad air of the tube. What is bad air, and what is its precise effect on our physicality are questions that the doctors have not yet answered with unanimous voice. At the inquest referred to above, a juror questioned the doctor as to the amount of carbonic acid gas in the air of the tube, evidently under the popular-pseudo-scientific impression that carbonic acid is the mischief maker, but as a writer in the *Pall Mall Gazette* observes, though atmospheric air contains traces of a number of gases besides oxygen and nitrogen, it is remarkably constant in composition. A very industrious investigation has lately been con-

cluded by Professor F. C. Benedict on this point. For more than twelve months Professor Benedict and a number of colleagues have been engaged in collecting and examining samples of air in all sorts of places, and in all sorts of conditions. They examined air over the North Atlantic, on mountains, over cities, and in city streets, and also in city subways. They found a method of eliminating error from their calculations, and the method appears satisfactory. But the conclusion which emerges from the examination of all their samples is that the proportions of the chief gases of the air always remain the same.

Dr. Leonard Hill tells us that stagnation is the deleterious factor of a close atmosphere, and that movement is more essential than purity. But in a "tube" there is plenty of continuous movement of the air from the mere passage of the trains, even if there is no artificial ventilation. Like the *Pall Mall Gazette*, we have the very highest respect for his opinion, but we think he underestimates the effect of evil smells, and of very small quantities of actually poisonous gases, on the nervous systems of those who breathe the air of confined spaces. Modern nerves do not stand smells or noises very well; but the reason for that is not by any means entirely ascertained.

The decision of Sir Alfred Bray Kempe, Chancellor of the Diocese of London, in the application by the Rev.

Francis W. Boyd, the vicar, and the churchwardens of St. Saviour's, Pimlico, for a faculty authorising the erection of a rood-screen and a new pulpit in the church, forms a precedent for the use of rood-screens, at least in the diocese of London, where the figures are erected simply as an architectural decoration. The Chancellor said that as the proposed screen contained a figure of the Crucified Saviour with attendant figures of the Virgin and St. John, he had deemed it desirable to have the application made in Court and not in Chambers, in order that the use of the screen might be clearly defined.

The Vicar, replying to the Chancellor, said that there was at present in the church a low screen, of the height of a table, with gates, which had been put up many years ago under a faculty. The new screen would also have gates. The church was open all day long for private prayer. There were no "Stations of the Cross" and the services were those ordained by the Prayer-book. The figures on the screen would be erected simply as an architectural decoration. The proposal and design had been unanimously approved by the parishioners in vestry, and no adverse opinion had been expressed by the congregation. The cost would be £340, of which £270 was in hand. A new pulpit, which would harmonise with the screen, had been offered, as the present alabaster one was much out of repair. The Vicar added, in reply to the Chancellor, that he had held the benefice for six months.

The Chancellor said it was his practice, after hearing these applications in open Court, to grant them whenever he was satisfied that no "superstitious reverence," in the sense in which it was understood in law, was intended to be paid to these figures on the rood-screen, or that it would not otherwise be put to abuse. He was quite convinced on these points in the present case, and he had no hesitation in granting the faculty as prayed.

THE MALL IMPROVEMENT.

The protracted negotiations concerning the treatment of the Admiralty Arch appear to have at last reached comparative finality with the presentation of a report by the Improvements Committee of the London County Council on Tuesday last, advising the adoption of the scheme prepared by the Joint Committee, and recommending that the completion of the Mall to Charing Cross improvement, under the powers conferred by the Metropolis Management Acts, 1855 and 1862, and the powers to be sought in the session of Parliament of 1914, be generally as shown on the plan, and that the improvement be undertaken as soon as the Council has approved the necessary estimate and voted the expenditure therefor, and has obtained the necessary power for the compulsory acquisition of such interests, if any, as cannot be acquired by agreement.

That the estimate of expenditure on capital account of £215,000, submitted by the Finance Committee in respect of the completion of the Mall to Charing Cross improvement, the property needed for which is shown by red colour on the plan, be approved as an estimate of costs, debt, or liability under Section 80 (3) of the Local Government Act, 1888.

That, subject to H.M. Government and the Westminster City Council each agreeing to contribute one-third, not exceeding £38,333, of the net cost, expenditure on capital account not exceeding £215,000 for the purpose specified in the foregoing resolution be sanctioned.

Mr. Dawes moved that the report be referred back to the committee, on the ground that the Phoenix Insurance Company had been unfairly treated.

Mr. Gordon seconded, and called attention to the increased cost with which London was saddled in consequence of the delay which had taken place in completing the improvement.

Viscount Peel (Chairman of the Committee) said the Phoenix Company had not exhibited any degree of civic or patriotic spirit. They were out trying to drive the hardest bargain they could.

Mr. Tasker said the suggested scheme of improvement was planned on two axial lines, one following the direction of the Mall, and which, if continued, would lead to the centre of the Grand Hotel. From the arch itself another axial line followed the direction of the Strand. The scheme did not present a complete circle, but two quadrants struck from different centres, which was ridiculous. In his opinion, the

circle should be completed and the design carried out in harmony with what Sir Aston Webb had already built. The whole thing was a "hotch-potch, higgledy-piggledy mess," and the committee ought to bring up a comprehensive scheme of improvement worthy of London.

The reference back was defeated, and the recommendations of the committee adopted.

COMPETITION NEWS.

BRISTOL.—In connection with the proposed Council School, Shirehampton, the designs for a senior mixed department to accommodate 520 scholars submitted in a competition by Messrs. Herbert J. Jones & Son, architects, Broad Street Chambers, 52 Broad Street, Bristol, were adopted by the Bristol Education Committee at their meeting on the 24th ult. A junior mixed school is to be built at a later date.

CHRISTCHURCH.—The Board of Guardians have decided to invite architects to submit designs for the erection of two homes, one for boys and one for girls, to be built as economically as possible.

ECCLES.—At the last meeting of the Education Committee thirty-eight applications were submitted from architects desirous of offering designs for the proposed new Council School, and the following were selected: Messrs. Brameld & Smith, Mr. J. B. Broadbent, Messrs. W. T. Gunson & Son, Mr. Joseph Holt, Mr. H. O. Hill, Mr. N. H. Hacking, Mr. John Knight, Messrs. Mangnall & Littlewood, and Messrs. Woodhouse & Howard, all of Manchester.

LONDON.—As we have already announced, the London County Council on April 22 approved in principle the conduct of an open competition for designs for two public elementary schools, and agreed that an assessor or assessors should be appointed by the President of the Royal Institute of British Architects. The Education Committee now report that the President has appointed Mr. John W. Simpson, F.R.I.B.A., to act as assessor for the purposes of the competition. A scheme for conducting the competition is under consideration, and the committee will report thereon in due course.

ST. HELENS.—At a meeting of the Parliamentary and Public Buildings (Joint) Committee on Thursday, the Mayor, Alderman Forster, chairman, the committee considered the question of dealing with the Town Hall buildings, having regard to the recent fire, and it was resolved:—(1) That arrangements be made for the erection of a large hall and all buildings required for the municipal and other work of the Corporation, and that a block plan of the existing municipal buildings and adjacent buildings and land belonging to the Corporation be prepared, showing the site available. (2) That a new fire station be erected. (3) That a Public Buildings and Trade Committee be requested to report to this committee as to the accommodation required; and (4) That schemes and designs be invited for providing the accommodation required, and that premiums of £100, £50, and £25 be offered for the designs placed first, second and third respectively, by an assessor to be appointed by the Corporation.

SUNDERLAND.—The Town Council have decided to invite competitive designs for the proposed training college, at a cost not exceeding £15,000, and to ask the President of the Royal Institute of British Architects to appoint an assessor to adjudicate upon the plans.

ILLUSTRATIONS.

BUSINESS PREMISES, VICTORIA DISTRICT RAILWAY STATION, LONDON.

OUR illustration shows the design by Mr. Ernest Runtz, F.R.I.B.A., for a block of business premises which it is proposed shall be erected over the Victoria Station of the District Railway.

BALCONY FRONT IN WROUGHT-IRON.

THIS drawing by Mr. G. C. Styles was awarded a prize in the monthly competitions of "The Architect" Students' Sketching and Measuring Club. The subject is a good piece of French smith's work now in the Victoria and Albert Museum.

DESIGN FOR HALL IN JACOBÆAN STYLE.

MR. CHARLES BERNARD's drawing is a study in archaeological interior design intended for execution in oak.

THE ROYAL ARCHÆOLOGICAL INSTITUTE.—II.

THE opening day of the Summer Meeting of the Royal Archæological Institute at Exeter was, as described in our last issue, devoted to a civic reception in the Guildhall and a visit to Forde Abbey—one of the show places of the West of England. On

Wednesday, July 23,

an hour's beautiful drive in motor conveyances took the party to

CADHAY HOUSE.

The first trustworthy record of Cadhay appears in the reign of Edward II. (1307-27), when it was in the possession of a family of the same name. Two centuries later it came through the female line to the East Devonshire Haydons. According to the *Survey of Devon*, written about 1620, "John Haydon, esquire, sometime bencher of Lincoln's Inn . . . builded there a fair new house, and enlarged his demesnes." This John Haydon (1545-87) seems to have made liberal use of stone from some abandoned monastic buildings at Ottery, for which he got a grant from Henry VIII., as several pieces of carving have been found in the walls. The house retains its fourteenth-century great hall, though it is now divided into two storeys and the open

cottages on the south side were pulled down, together with outbuildings. The owner can now well and proudly claim that "once more the house stands foursquare on its ancient site, a perfect example of English domestic architecture." The glory of the house is really its east front picturesquely broken up with gables and bay windows, the centre ornament of which is a projecting stair turret, the whole adorned with old cast-lead gutters.

The motors were then boarded, and a twenty minutes' run made to

OTTERY ST. MARY CHURCH.

According to a hundred-years-old edition of "Beauties of England and Wales," Ottery St. Mary is a large, irregular market town, deriving its name from the river Otter, and the dedication of the church to St. Mary. It possesses a literary interest in being the birthplace of the poet Coleridge. The church is in more than one respect a unique structure. It is generally regarded as the finest parish church in Devon, and offers abundant material for lengthy study. It was described to the members by Mr. W. H. St. John Hope, Litt.D., D.C.L.

The original church was given in 1061 by Edward the Confessor to the canons of the cathedral church of Our Lady at Rouen, and it remained with them for about two centuries.



[Photo by Miss Mary Hare, Exeter.]

COURT IN THE CATHEDRAL CLOSE, EXETER.

timber roof is invisible from the dining hall. The long gallery, whitewashed and unadorned, is the best part of the original fabric. The general plan is that of the larger type of manor house. The buildings are grouped round the closed Court of the Sovereigns. The latter is charming, though hardly as important as its grandiloquent title suggests. It is unusual in having its fronts faced with chequer work of alternate sandstone and flint; in the projecting Renaissance niches are figures of the Sovereigns Henry, Edward, Mary, and Elizabeth, one on each face. When Cadhay passed from the Haydons in 1736, owing to financial difficulties and a long law suit, the new owner subjected it to a drastic, though no doubt much-needed, overhauling. He entirely altered the north front, and its Georgian façade is sadly out of keeping and generally unattractive. The hall was divided transversely also, and other internal alterations carried out. About the middle of last century the back of the house was converted into a farmhouse, and the northern half left as a residence. In the restoration undertaken by the present owners in 1910 the work was confined to making good the decayed portions of the fabric and to bringing into this fine old building heating, lighting, water, and drainage. As little interference as possible was made with good workmanship, whether Tudor or Georgian (the latter includes a plaster ceiling in the dining-room). Some unsatisfactory

The next important date usually given is that of the consecration of the church by Bishop Bronescombe in 1259, and to him large portions of the building have been assigned. But Mr. Hope was inclined to regard this as a myth, for he found, after going round the church and examining the mouldings and so on, that it was difficult to believe that that bishop dedicated any portion of the present structure. In 1335 the church was granted by the canons of Rouen to John Graunson, Bishop of Exeter, who founded here in 1337 a college for a warden, precentor, sacrist, minister, and four other canons, and to him is due the greater part of the existing buildings. As was to be expected with a collegiate establishment, the ground plan is not that of an ordinary parish church. Until the Dissolution the parishioners had no rights except in the nave and aisles. In 1520 a handsome aisle and porch, both fan vaulted, were added to the north side expressly for their use by the Marchioness of Dorset. In 1545 it was proposed to pull down all that part of the church not belonging to the parish. Estimates were made as to how much the lead would fetch, the value of the glass, and so on. Fortunately, better counsels prevailed, and the whole church was left standing. It was placed in the charge of four governors, whose office has continued ever since.

The church consists of an aisled presbytery with an

eastern Lady chapel, lesser chapels, and double-storeyed vestries on either side, transepts carried up as square towers, a nave whose narrow aisles act in the manner of flying arches, and the Dorset aisle on the north side just mentioned. Both inside and out there is a very complete set of consecration crosses. The church is vaulted throughout. When Bishop Graunson planned the building he is supposed to have had in his mind's eye the plan of the cathedral church of Exeter. The most conspicuous similarity is in the fact that instead of western towers there are two transept towers. In both cases the presbytery is the same length as the nave, chapels stand north and south of the choir aisles, and these aisles terminate in further chapels. Indeed, there is a marked coincidence between the planning of these two buildings. In matters of detail Mr. Hope considered everything was in favour of the cathedral church, and suggested that Ottery St. Mary might be possibly regarded as "building on the cheap," for there was a general rudeness and flatness and a marked absence of ornamental features.

About 1851 Butterfield carried out a drastic restoration. In the course of it the floors were levelled, whereas the collegiate presbytery should stand some feet higher than the parish nave. The reredos is partly original; in 1829 the western face of it, being in a very mutilated condition, was

stands firmly on its legs in a way that modern lectern eagles fail to do. The two elaborate tombs of Sir Otho Graunson and his wife on either side of the nave have been considerably restored. The knight, who was a brother of the builder Bishop, is represented with a remarkable long moustache, and in the unusually truculent attitude of having his naked sword tucked under his arm. This pose is, however, not unique in this part of the country.

Sir Henry Howorth joined Mr. Hope in condemning Butterfield's restoration as being one for which there was no excuse, æsthetic or useful. It was a specimen of this architect's worst taste, and things were destroyed ruthlessly for no purpose whatever. Sir Henry said he wished they could subscribe to have it whitewashed, the colours introduced being extraordinarily bad. Yet Butterfield was considered one of the greatest architects of his time. In this connection it is worth quoting the eulogium of a well-known guide-book: "Galleries and pews have been swept away; the stonework has been restored where necessary; stained glass and colour have been introduced; and the church is now a pattern and ornament to the entire county."

The Lady chapel is peculiar in having a rood loft; it probably reproduces the characteristics of that formerly in the nave, and is similar in its main lines to that at Exeter



(Photo by Miss Mary Hare, Exeter.)

HALL OF THE VICARS' CHORAL, EXETER.

restored, the great cornice being evolved from fragments. The sedilia are ancient. The choir arrangements have been entirely altered. There used to be a stone screen or pulpitum beneath the eastern arch of the crossing. Unfortunately, it was taken down about 1830. The two bays east of it were occupied by canons' stalls, some of which still exist, though they are displaced. The parish altar stood in front of a screen west of the crossing. As Mr. Hope pointed out, it was never intended that the congregation should have from end to end of a church an unbroken vista, and so lose that air of mystery which is still retained by interiors like the cathedral churches of Wells and York. Altogether, the whole effect of the building must in the fourteenth century have been very different from what it is now.

Students of detail cannot fail to notice the unusual character of the vaulting in both choir and presbytery. As the same remarkably curious arrangement of the ribs may be seen at Wells, it is quite possible that a band of masons may have come down from Wells to Ottery. Eagle lecterns are usually so common and so commonplace that there is a danger of the bronze one here being overlooked. This would be a pity, as it is a remarkable object, for it has escaped being cleaned up, and the grain of the wood mould in which it was cast may still be seen on its surface. The bird, too,

Cathedral. On it stood a pair of organs. Some of the original stall-work remains, though much cut about. A remarkable feature is the wooden lectern bearing the arms of Bishop Graunson, and with a shaft of the same date. The eagle lecterns were formerly only used for reading or singing the Gospels from; now they are used for the Lessons. The eagle would be placed either in the rood loft or on the north side of the altar. In the latter case it faced north as being the side where the devils (who most needed the message of the Gospel) were. In the chapel are two elaborate examples of consecration crosses. When a church was hallowed there were twelve placed inside and twelve outside. Generally it was nothing more than an ordinary cross in red paint. Here there were introduced little figures of angels with shields. In St. George's Chapel, said Mr. Hope, the rayed roses of King Edward IV. were charged with a cross, and did duty as consecration crosses.

There is still in use an ancient clock with its original works, which resembles that in the north transept of Exeter Cathedral. It was erected probably about 1340. The dial is arranged according to the Ptolemaic theory, which regarded the earth as the centre of the solar system. After a silence of over thirty years, during which the works lay in a heap of debris, the clock was restored in 1907. There are at present four of these four-

teenth-century clocks in the West of England, viz. at Exeter and Wells cathedrals, St. Mary Ottery, and Wimborne. It is only in the latter two cases that the works are in working order.

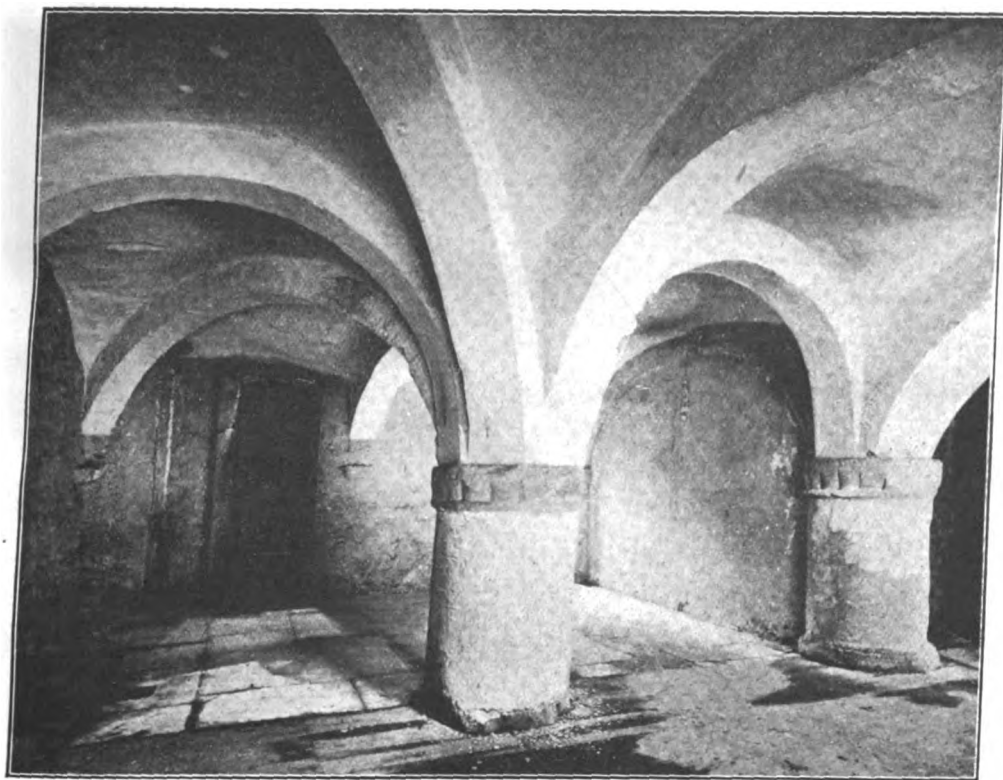
After lunch at the King's Arms, the party motored to

AWLISCOMBE CHURCH.

This, of no great size, shows a good many local characteristics. With the exception of a later southern addition the church is of fifteenth-century date, and the nave and aisle retain their original barrel vault. Awliscombe is one of the twelve Devonshire parish churches with rood screens of stone. Mr. Brakspear, F.S.A., expressed very strong doubt as to the correctness of the usual statement that the southern porch and transept were erected by Thomas Chard, the last abbot at Forde, and for many years suffragan-bishop of Exeter. The work was, he pointed out, quite different from that at the Cistercian abbey. The church contains many local characteristics. Its walls are of typical red sandstone. Curious little cap mouldings are on the screen, which occur also on the mullions of many Devonshire windows. When an arch was subsequently cut in a wall, as here between the nave and transept, the soffit of it was panelled. This is a charming characteristic of Dorset,

remains have been found on the spot, but the origin of the entrenchment is undoubtedly earlier. The works on the south have been tampered with at a much later time, and possibly the west entrance in its present shape, like the cross-banks and the slight traces of an inner work on the extreme south, as well as the mound which once stood in the south half of the area, are all due to Norman engineering.

Sir Henry Howorth, who is on the committee of the Ancient Monuments Commission which deals with this class of antiquities, gave a general account of earthworks. The problems set by them were, he said, not yet ready for solution. The only possible way of discriminating between the various classes of mound was by putting the spade into them. The one place where that had been done was in Dorsetshire, where the late General Pitt Rivers spent a considerable amount of time and money on the work, and as a result produced three quarto volumes showing what might be learnt and the best process of digging. There had not been one single mound or dyke dug into by that distinguished archaeologist which had not immediately disclosed its story. Pottery occurred in every case, enabling the mounds to be classed with perfect precision. If this work were done carefully the whole story could be found without defacing the forts. According to Sir Henry, Hembury Fort owed its



[Photo by Miss Mary Hare, Exeter.]

THE UNDERCROFT, ST. NICHOLAS PRIORY, EXETER.

Devon, and Wilts churches. Another peculiarity of Awliscombe is the way in which the floor slopes upward from the west end, owing to the fact that the church runs up a hillside.

Mr. St. John Hope remarked on the fragments of old glass in the north aisle windows as being white glass, with the design drawn in black outline and coloured with a yellow stain. He said that a very large percentage of old windows were of clear white glass, and were neither tinted nor stencilled. This enabled abundant light to pass through into the interior of the building.

HEMBURY FORT.

This is a most imposing earthwork standing nearly 900 feet above sea level. It is surrounded by a double vallum on the rather steep east side; this is increased to three on the north, west and south sides, and to four in the north-west corner, where the ascent is easiest. The main entrance on the west side is particularly noteworthy. It passes diagonally through three ramparts and two ditches. A bank on the south running parallel to the entrance defends the ditches on that side. Before the interior is gained the path is split in two by a wedge-shaped platform surmounted by two curved banks. There is also a well-protected entrance on the east. The space inside the fort is divided by two parallel banks, through each of which runs a diagonal path. Roman

origin to Neo-Celtic times, i.e. to the people of the Iron Age—so-called because they introduced the working of iron into Britain. This people occupied the country from the Lowlands of Scotland to the English Channel, and from Kent to Cornwall. They possessed a wonderful skill in the arts of decoration as instanced by their applied ornament. Their art was swept away at the Roman invasion, though it lingered on in Ireland until the time of the Danes. The race probably came from France about 400 B.C. These forts were the footholds of the Celts in a hostile country, and were approximately a day's march apart. Here they kept their cattle. The top of the earthwork would be surrounded by a wooden stockade, in front of which was a ditch with little pits in the bottom of it, containing pointed oak pegs.

BROADHEMBURY GRANGE.

This house was formerly a grange of Dunkeswell Abbey. The Rev. J. K. Floyer, who described the building, said that it was the shape of a quadrangle with an I attached to one side of it. The oldest parts are the north and east sides of the quadrangle, which are of the fifteenth century. The grange was bought by Edward Drewe from the Earl of Southampton, to whom it had been granted at the Suppression, in the last years of Elizabeth's reign. Drewe was Master of the Bench of the Inner Temple in 1581, and Lent Reader in 1584. The house was completed before the death

of Edward Drewe in 1622. The most remarkable feature of the building is the drawing-room, with its extraordinarily ornate panelling and mantelpiece, as well as beautifully modelled plaster ceiling. The elaborate screen appears to have been taken from some other house, for it manifestly was not designed to fit its present site. It may well have been brought from the great hall of Drewe's Killerton residence. The woodwork on the other three sides was done all at the same time. The original intention seems to have been to derive the subjects for the carvings from Ovid's "Metamorphoses," which was a very popular work at one time. This accounted for the introduction into the design of the signs of the Zodiac, with which the old illustrated editions of the "Metamorphosis" ordinarily began, and four such subjects as were represented on the centre main door. The remainder of the designs seemed to have been left to the conventional patterns of the local carver, and could not be classified under any one head.

The Pegasus, the badge of the Inner Temple, connected the whole of the carving with Edward Drewe. Mr. Floyer read a story about two of the Drewe family, which showed that they were still at Killerton, and not yet in occupation of the Grange in 1611, and a date on the mantelpiece of 1619, together with the arms and initials of James I., placed the date of the carving in the early years of that king's reign.

(1107-36), a nephew of the Conqueror, succeeded him that anything definite was done. To Warewast was undoubtedly owing the beginning of a Norman church of very considerable importance.

Anybody who visited Exeter Cathedral for the first time was at once struck by the Norman towers over the transepts. But to the trained eye there was in addition a very considerable amount of walling in other parts of the building, which justified their being connected with the period of these Norman towers. On the north side of the nave, for example, precisely the same kind of masonry was to be found up to the window sills. There were also the lower parts of several Norman pilasters.

What would have been the plan of the Norman church eastward? It is said that when the floor of the choir was being relaid by Sir Gilbert Scott in his general restoration of the church he found the foundations of the Norman apse. This suggested that the Norman choir was of three bays, terminating in an apse. There were two main types of Norman east ends. The one was like that of Durham, where the middle part ended in an apse, and the aisles were also apsidal, but square ended outside. The other type was like Norwich or Gloucester, where the aisles were continued round the great apse, with chapels opening out of the ambulatory. Mr. Hope thought it was a debatable question



BAMPFYLD HOUSE, EXETER.

[Photo by Miss Mary Harr, Exeter.]

In the evening Mr. St. John Hope gave a lecture at the Royal Albert Memorial buildings, dealing with

EXETER CATHEDRAL.

In visiting a place that is a great church like the cathedral church of Exeter it was not always possible, he said, to compress into the time allotted to it the amount of history necessary to make the story plain. A preliminary discourse consequently cleared the decks, and enabled the visitor to concern himself solely with the building itself.

At the Council of London in 1051 it was ordained that certain episcopal sees should be removed into more populous towns. Amongst others the bishop's stool of Sherborne was removed to Old Sarum, Selsey to Chichester, and Crediton to Exeter, and it was reasonable and necessary to assume that a move was made into a church of sufficient importance to serve as the new cathedral. Mr. Hope held that notwithstanding the tradition of a church having been here in Saxon times and destroyed by the Danes, the first church was that in which the Bishop of Exeter established himself in 1051. It is said to have been largely built through the munificence of Cnut. Apparently it did not conform to the ideas of the first Norman bishop as being a sufficiently important building, for in the time of Osbern a new one seems to have been talked about. But it was not till William Warewast

whether that arrangement had not existed at Exeter. The point could not be proved, however, except by digging below the floor of the aisles.

One of the peculiarities of Exeter was the present arrangement of the transepts. On plan they were nothing but transepts; but when one looked at them it was to find that they were towers. There is no other church in England, except Ottery St. Mary close by, with towers of this unusual arrangement. Mr. Hope said his own impression was they were intended at first to be merely transepts, but that later they were carried up as towers. Mr. Somers Clarke, who had examined the church with him, was of the same opinion, that their present disposition was an afterthought. If that were the case, the Norman church would have been quite normal in plan. Another point in favour of the transeptal theory was that each transept from the first had had eastern apsidal chapels, which were altered in the thirteenth century as now seen. But if there had always been a massive tower over each transept they certainly would not have cut a hole in the wall afterwards and risked the towers coming down.

The south door was an insertion of the beginning of the twelfth century. To make it the very unusual course had been adopted of cutting it through the courses of the walling. The consecration crosses on the south wall were beautiful

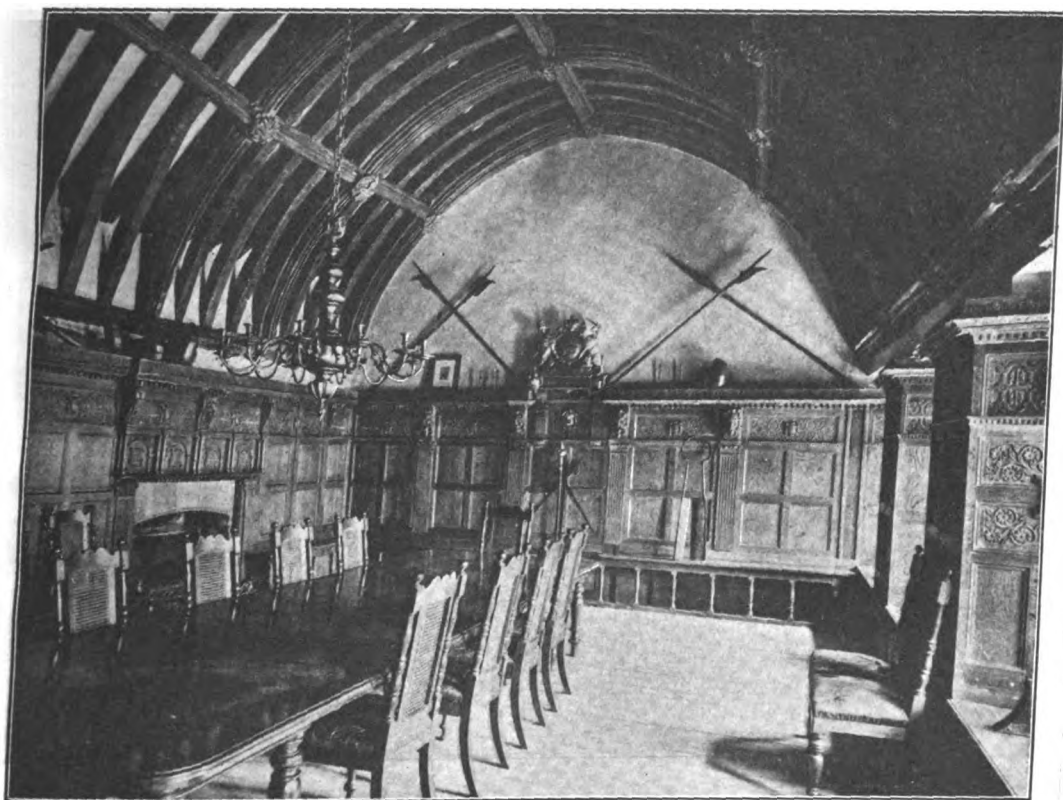
things, and belonged to the time of Bishop Marshall (1194-1206).

In 1237 there was mention of a Lady chapel. This is a very early date for such a chapel, and if there are any remains of it above ground they exist up to the window sills. Above this level the chapel had been largely altered and brought to its present form about 1280. This date was also important as marking the beginning of the great work of transforming the Norman church into the beautiful building which they now saw. In any other part of the country this so-called Decorated work would be considered as dating from 1310 or 1320. At Exeter the style appeared unusually early. But just as the so-called Early English style started at Wells and the "Perpendicular" appeared at Gloucester long before it was found elsewhere, so the "Decorated" style may have been invented at Exeter.

At Exeter they were not dependent for their early information on unreliable chronicles. For the Dean and Chapter still possess a long series of Account Rolls dating from 1279. The sacrist entered in them the whole of the money given to him for the works, noted how it was paid out, and what was done with it. It has been a habit of successive writers, said Mr. Hope, to ascribe every beautiful work to certain bishops and abbots, thus giving indirect honour and glory to the

The trouble was that once a statement got into print it never seemed possible to overtake it. As an illustration of the results of such misstatements, Mr. Hope mentioned that about six months ago an inscription tablet was put up in the north porch ascribing it to Bishop Henry Marshall (1194-1206), whereas the ancient Rolls proved that it was fourteenth-century work, having been begun about 1350, at the same time as the Minstrels' Gallery. Bell's handbook trotted out the old erroneous theories, and later writers had followed suit. It was a pity that people would not read the history of the building by the light of the existing documents. Professor Lethaby was the first to do this.

In conclusion, Mr. Hope said he trusted they could regard the story of beautiful Exeter Cathedral as having been at last settled. It was a pity that they could not get to know a little more of the Norman plan. Probably a very careful measuring up of the work would help them in this matter. The Norman church could not have been of any great height—in fact, it must have been rather a humble building. Consequently, its successor is rather low compared with such a church as Westminster. Quite possibly the reason why the builders did not carry up a central tower was because the church had been seriously injured during King Stephen's siege of the city of Exeter.



THE TUCKERS' HALL, EXETER.

[Photo by Miss Mary Hare, Exeter.]

Church. But they were really done by the sacrist and precentor. For instance, at Exeter it was customary to talk of Bishop Stapeldon's or Bishop Oldham's work, whereas the Account Rolls show that the particular bishop had nothing to do with it, and that the credit should really belong to the Dean and Chapter, who collected the money and saw to the carrying out of the work. At Exeter it was not necessary to think in bishops at all. Many bishops, however, certainly helped with donations—and generous ones, too. But the Dean and Chapter were responsible for the work.

In 1280 we find that one of the bishops who desired to be buried in the chapel to the south of the Lady chapel mentions in his deed that the chapel was almost new. From this it is possible to begin to put precise dates to the building works. Mr. Hope then proceeded to give the precise years in which the various parts of the structure were begun and finished. It formed, he said, a delightful and simple story, and, when read by the light of the Account Rolls, it was all very practical. The work of rebuilding the Norman structure began at the important—i.e. the east—end, and proceeded gradually westward.

Mr. Philip Freeman's book was quite excellent in its way, and he was one of the first to appreciate the value of these Rolls. But he misread them in an extraordinary manner.

Thursday, July 24.

EXETER CASTLE AND CITY WALLS.

The members owed a debt to Mr. Harbottle Reed, F.R.I.B.A., for he supplied to each his excellent pamphlet giving short notes of the places visited during the morning and afternoon and of the city generally. From it we quote the following account of the castle:—

In the garden of Rougemont still remains part of the deep ditch of what was probably a British hill camp crowning the red mound occupied afterwards by the Romans and Saxons; while possessed by the latter it may have been merely a stockaded camp fort. Although Athelstane (924-940) walled the city, the gateway bearing his name, and which, except walls, is the only part of the castle still remaining, was not erected until the century after his death, and it would be difficult to point out any indisputably Saxon masonry, although there may be some of that or of even earlier date. Baldwin, at the Conqueror's command, altered the walls or rebuilt them in Norman fashion, as well as the castle proper. It was a grandson of the same name who held the castle against King Stephen, who closely invested it for three months, the city remaining loyal. After a Royal expenditure of 15,000 marks and the enactment of thrilling scenes in open assault and

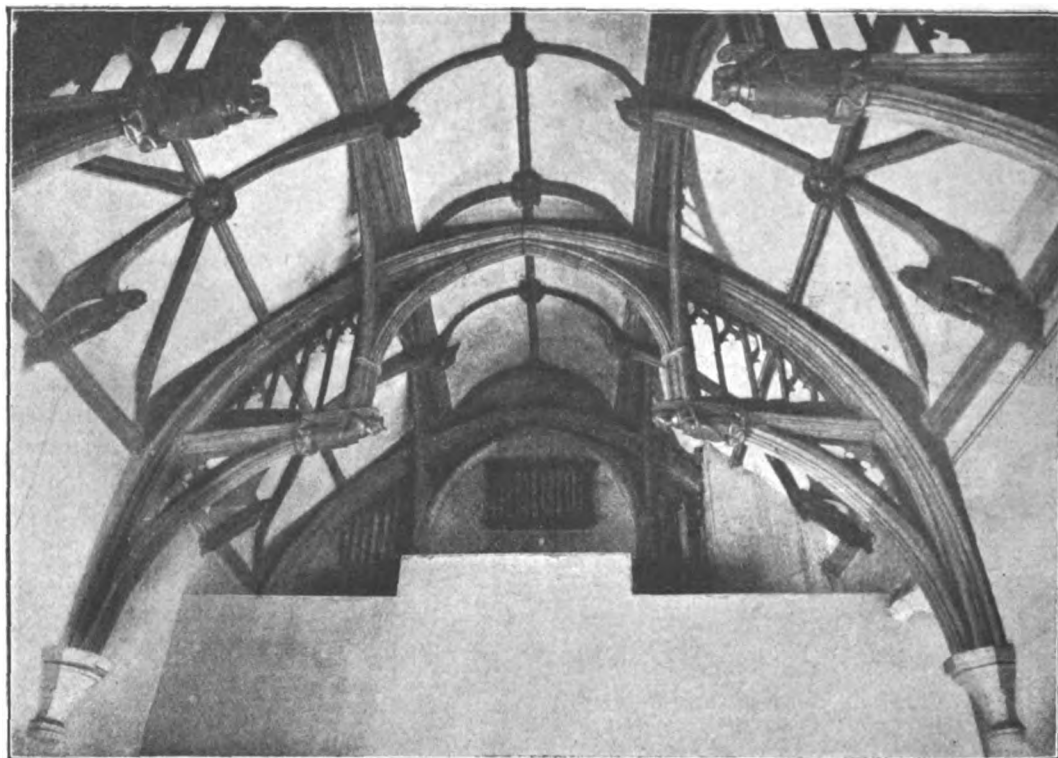
secret sallies, and the garrison had been reduced to such straits that wine had, it is said, to be used not only for cooking, but for extinguishing fires, Baldwin capitulated, and was allowed to retire with his followers with all the honours of war. In 1204-5-8 extensive rebuilding was going on, and the bastions were added or altered, so much so that in 1259 it was referred to as the New Castle. The Domesday Book does not include it, as it was Royal property. In 1231 it was granted to the Duke of Cornwall. During the next century we find the castle in the Royal hands, and Richard II. evidently made his half-brother, John Holland, keeper, who, being created Duke of Exeter, built a stately house within the castle precincts (1397). The strength of its walls was, however, not a sufficient safeguard to prevent the Duke's head from falling beneath the axe of the executioner two years later.

In the Wars of the Roses, Sir Hugh Courtenay besieged the city (1470), and thirteen years later Richard III. paid Exeter a visit, when the loyalty of the West was under suspicion. His brother-in-law, with his esquire, were condemned as rebels, and beheaded at the crossing of the two main streets. Richard seems to have visited, viewed the castle, and been startled by its name. Little is recorded of the castle in the sixteenth century. Between 1607 and 1624

tinuity of masonry. It is a patchwork in many styles and gradations of workmanship, from flints and coarse rubble to fine-dressed close-jointed ashlar. Of the five gates little remains except the foundations of that on the east.

ST. NICHOLAS PRIORY

There is one specially interesting feature about the existing ruinous fragment of this priory, inasmuch as the Corporation have very recently purchased it, and called in Mr. Harold Brakspear, F.S.A. (one of the Council of the Royal Archaeological Institute), to undo as far as possible the fearful damage permitted to be done to it by preceding generations. Curiously, it was previously purchased by the City Fathers in 1549. Mr. Brakspear, before taking the party over it, said that about the first foundation of this small house nothing definite was known. It dated to pre-Conquest times. The Conqueror appropriated it as being part of the dower lands of Earl Godwin's widow, and handed it over to Battle Abbey, with whom it remained until the Dissolution. A new monastery and church dedicated to St. Nicholas was erected about 1089. Of this building a small crypt or undercroft remains with an unusual type of early stone-groined roof. It has two low circular central piers with scalloped caps, from which spring plain transverse vaulting



ROOF OF LAW LIBRARY, EXETER. (Photo by Miss Mary Hare, Exeter.)

a new Sessions House was built, and the Northernhay, or north ditch, was filled in, levelled, and walks made. The castle is spoken of as being in ruins in 1630, but a dozen years later the trees were cut down, and the castle had its share in the Civil Wars. It was twice besieged in 1642-3, being held for the Parliament and surrendered to Prince Maurice. It was concerned in plots and trials, the Assize Courts recording other matters than ordinary criminals and legal strife. Penruddock and Grove, two Royalists, were executed for being a little premature in anticipating the return of Charles II., at whose restoration only six years later the same courts re-echoed the booming of cannon placed on the castle walls announcing that joyful event.

King Athelstane built, or rebuilt, the city walls with stone before 940. The present walls may be assumed to be on much the same lines, with a circumference of not quite a mile and a half, the greatest length of the enclosure being about 833 yards and breadth 567 yards, varying considerably in height, but generally about 20 feet by 8 feet thick, built with several kinds of stone. Approximately five-sixths of the total girth of the walls remain. Pierced by five gates, the defences of the wall were strengthened on the south side by two semicircular bastions and a polygonal one at the south-east angle, which still remain; on the north side the steep slope rendered them unnecessary. There is little con-

tribs, and similar ribs on only one groin of each compartment. It is considered to be one of the earliest attempts at groined vaulting in England. The remaining parts of the building are of fifteenth-century date. The prior's parlour and the frater were converted into dwelling-houses of a humble character, and they present a curious juxtaposition of early jerry building and late Gothic work. It is at present rather difficult to recall their appearance when they were the Guest Hall, the prior's lodging, and the chamber for distinguished guests.

TUCKERS' HALL.

The Weavers, Tuckers, and Sheremen, said Mr. Harbottle Reed, F.R.I.B.A., were very prominent in the old trade incorporations of the city. We hear of them in 1452, and in 1490 the Weavers and Fullers were incorporated. The ordinances of the Weavers' Corporation, dated 1490 at Kingston in Hull, were fourteen in number. But many years before this the Company of Tuckers in Exeter were involved in a quarrel for precedence with the Cordwainers with regard to the Mayor's watch on Midsummer Eve, when there was a parade of arms and a procession of the civic companies marched around the city walls. It resulted in the Mayor awarding that the disputing companies should march hand in hand together. The hall is said to have been originally a chapel founded by the Fraternity of the Assump-

tion of the Blessed Virgin Mary in 1523; but he considered it to be much older. A record refers to its building in 1471. After the Dissolution of religious houses it came into the hands of the Tuckers on their request for its use in 1602, and they no doubt converted it into a two-storeyed building. The south windows are modern. A blank east end, such as is to be seen here, is common to several of the Exeter churches, as St. Olave's and St. Martin. Weavers are amongst the earliest guilds, alike on the Continent and in England. The Tuckers evidently panelled the walls of the first-floor room between 1634 and 1638 (the date over the mantelpiece), and they seem to have used the lower room for a poor school. Although the weaving trade in Exeter is now extinct, the ancient Corporation still survives and administers its own charities. The armour and weapons hung on the walls belonged to the Merchant Venturers' Company, the most powerful of the trading combinations. To it Queen Elizabeth granted a charter for "trafiquing the realme of fraunce and dominions of the french kinge," and everyone free of the company was to be resident in the city. Of the forty governors in the reign of Elizabeth twenty-five were Mayors of Exeter. Prominent fittings in the room are the Jacobean oak table at one end and the seventeenth-century Dutch chandelier.

VICARS' CHORAL HALL.

The college of the vicars' choral was founded by Bishop Brantyngham in 1388 upon a site known as Calenderhay, and of this date is the present hall in South Street, with its open timber roof. The buildings occupied three sides of a long rectangle, and were arranged somewhat after the manner of those at Wells. They were entered from the west side of the Cathedral Close; the hall was at the south-west angle. The north row was standing a few years ago, and formed a picturesque part of the Close, which cannot be said of the ugly sheds by which they have been replaced with the consent of the Ecclesiastical Commissioners. The panelling is, in the main, of the sixteenth century, but later repairs were done in consequence of its maltreatment at the rebellion. The upper panels of the screen at the west end have painted portraits of early Bishops of Exeter.

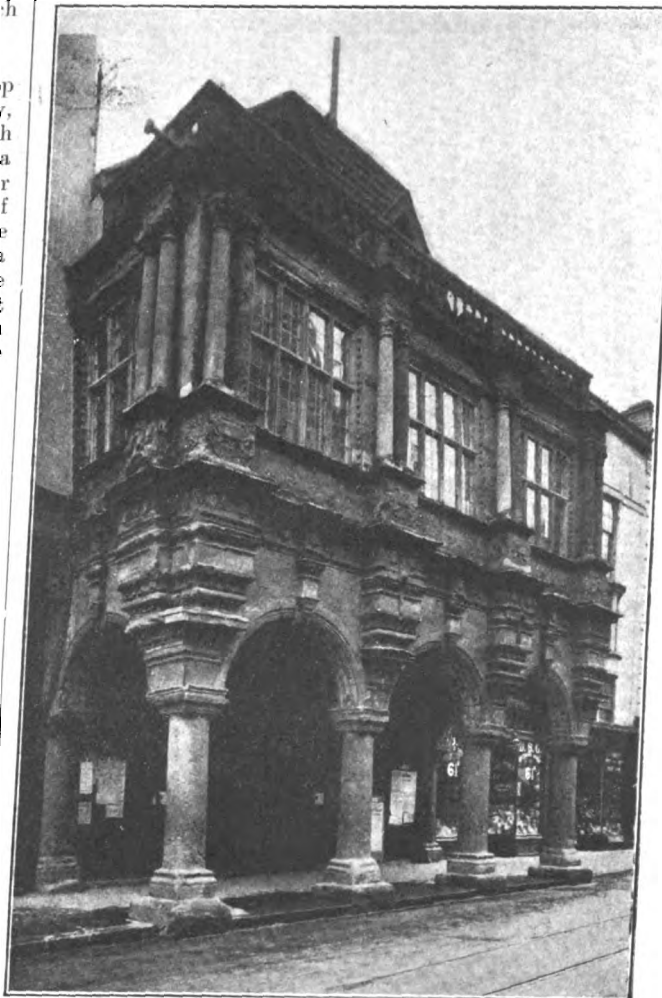
THE CATHEDRAL CHURCH.

At this time of day it may seem almost superfluous to write any brief description of the cathedral. On the other hand, it would be little less than absurd to omit it in any report of an archaeological meeting at Exeter. The following succinct outline is taken from the Institute's very excellent programme:—

The cathedral church has the unusual feature of an unbroken ridge to the presbytery and nave, with towers over the transepts. The first Norman church, of which the present transeptal towers remain, was begun by Bishop Warelwast (1107-37). The eastern extension and the remodelling of the church generally was begun by Bishop Bronescombe (1258-80), and carried on by his successors to its completion by Bishop Grandisson about 1350. The screen across the west front, containing his chantry, was his last work, and left unfinished at his death. The pulpitum, bishop's throne, and sedilia are all the work of Bishop Stapeldon (1308-26). The east window of the presbytery was altered by Bishop Brantyngham (1370-94), and contains glass of his time and of the original window. Bishop Oldham (1505-19) added two chantries on either side of the presbytery. There is a fine series of episcopal tombs, including those of Walter Bronescombe and Edmund Stafford (1395-1419), both with fifteenth-century canopies, on opposite sides of the Lady chapel; Walter Stapeldon and Henry Marshall (1194-1206), on the north side of the presbytery; John Grandisson (1327-69), in his chantry chapel; and Hugh Oldham, in the south chapel of the presbytery. Peter Quivil (1280-91) is buried in the middle of the Lady chapel, and Thomas Bytton (1292-1307) probably erected the beautiful early fourteenth-century tomb in the south transept of the presbytery, sometimes called the monument of Leofric. The tomb of Hugh Courtenay, second Earl of Devon, and his wife, of the end of the fourteenth century, now in the south transept, was originally in a chantry chapel in the nave. The Minstrels' Gallery on the north side of the nave was probably made, like those at Wells and Malmesbury, to contain a pair of organs. The early misericords of the choir stalls are attributed to the time of Bishop Brewer (1224-44). In the north transept is an old clock similar to that at Ottery St. Mary.

Mr. W. H. St. John Hope, in conducting the party over the cathedral, halted first at the west front. This was not to discuss the question of its restoration, but to deal with the

imagery there. The lower of the two ranges of figures depicted, in his opinion, the Kings of Judah, the sequence being broken at the two buttresses by pairs of figures, now with modern mitres, of the four Doctors of the Church. Underneath the pedestals are distorted figures of angels. In the upper row the two figures over the central doorway should represent the well-known group of the Coronation of Our Lady, that is, the marriage of Christ with his bride, the Church. The figure of Our Lady was, however, taken out and replaced by that of a king. On either side stand the Twelve Apostles; on the buttresses are the four Evangelists, and then come the Major and Minor Prophets. Mr. Hope emphasised the considerable differences between the style of the two ranges of figures as showing that the work above was much later than that below. He did not think that the upper series could be earlier than the reign of Edward IV., and it was clearly contemporary with the north porch, which was unquestionably of that date. Furthermore, the arched crown worn by the figure of Our Lord over the central door, was of a character not seen in English sculpture before the last quarter of the fifteenth century.



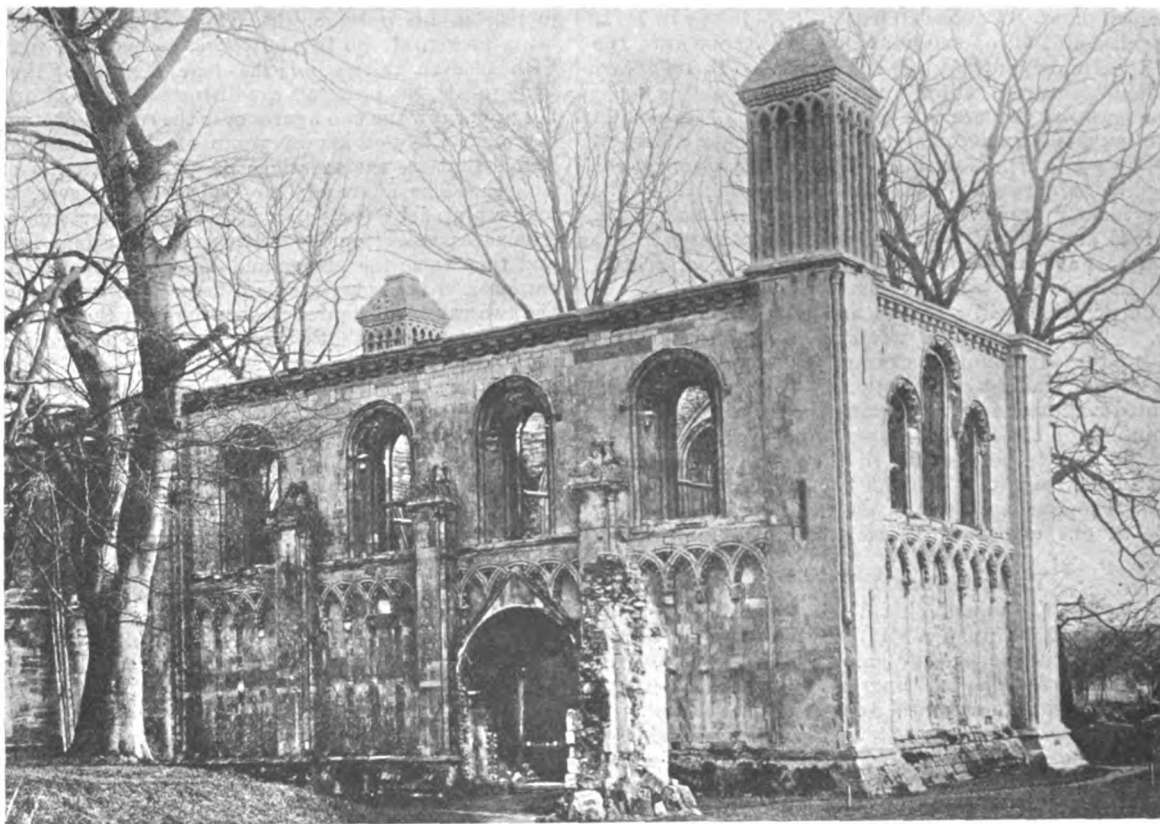
[Photo by Miss Mary Hare, Exeter.]

THE GUILDHALL, EXETER.

The doorway openings were of three different dates, that to the north being the last.

The party were then brought to the crossing of nave and transepts as being not only the most interesting part of any cathedral, but also as the best place from which to see the Norman work. Mr. Hope illustrated his belief that there was still remaining a great deal more Norman masonry than was generally supposed. He also discussed the alternative theories of whether the transepts were always intended to be carried up as towers or whether that was a later change of scheme, and decided strongly in favour of the latter view. There are, for instance, two blocked-up windows in the south transept which were apparently once gable windows, but when the transept was transformed into towers they had to be walled up in order to give greater strength to the wall. The work, too, could not have been carried out at one time, for the blocks of masonry above are larger than those below.

The beautiful choir and presbytery were, Mr. Hope said,



[Photo by R. C. Smith, Glastonbury.]

LADY CHAPEL AT THE WEST END OF THE ABBEY CHURCH, GLASTONBURY, 1913.

not of one date, as might at first be imagined from their appearance. They were really carried out in two periods, which could be easily distinguished. The west half, which formed the choir, was occupied by the Norman work while the presbytery east of it was being built. The main difference was to be seen in the triforium, which was much more deeply recessed in one part than in the other.

In the restoration under Sir Gilbert Scott the cathedral ran a very narrow escape of losing its proper pulpitum arrangement in order to gratify the craze for a vista. The organ rising above the centre of the screen removed the feeling of looking down a long tunnel. The choir still remained, as it ought to be considered, the chapel of the Dean and Chapter of Exeter. The screens at the entrances of several of the chapels, some of wood and others of stone, were exceptionally beautiful, and form such a collection as is rarely seen in other parts of the country. The figure work on them was, Mr. Hope considered, a complete contradiction to the general assumption that this country produced nothing of the sort to compete with the work of France.

After an interval for lunch, the party took trams to

BOWHILL.

This is a manor house dating from the middle of the fifteenth century, which would certainly be passed over by the uninitiated as of no account, for it seems at first glance to be nothing more than the thatched house of a nursery gardener. Actually it consists of a hall, with a two-storeyed block at right angles, and kitchens at the west end. The roofs throughout are original, and those over the hall and great chamber are ornamented with arched braces, and have the curious local characteristics of a small coved top. The hall retains its two-light windows with transoms, and had a fireplace in the east wall.

The next visit was to the

GUILDHALL.

This was ably described by the Town Clerk, Mr. H. Lloyd Parry, B.A., B.Sc., LL.B. The earliest mention of the Guildhall is in a document dated 1154-58. It is stated to have been "new built" in 1330 and again in 1464. In front of the hall stood a chapel dedicated in honour of St. George and St. John, with a chamber above, in which the chaplain lodged. After the Suppression the chapel fell into disuse, and in 1593-95 the whole of the forepart was cleared to the ground and superseded by the existing loggia and the chambers above, a picturesque example of Elizabethan work. The elaborate oak panelling that lines the interior of the

hall was inserted in 1594-95, and emblazoned with the arms of city benefactors and city companies. The door of the Guildhall is of the same date as the panelling.

The records of the Corporation, perhaps the most remarkable that can be boasted by any city or town in the kingdom, are stored in a room behind the Guildhall. They extend from the reign of the Conqueror, and include fifty Royal Charters and Letters Patent, beginning with a charter of Henry II. The Mayors' Court Rolls date from 1263, the Provost Court Rolls from 1328, the Rolls of the Mayor's Tourn from 1337, and the Receiver's Accounts from 1306. The matrices of most of the old civic seals still exist, the oldest and most interesting being the Corporation seal of date 1170-80.

THE LAW LIBRARY.

The purpose of this old hall on the north-east side of the Close is not known. It seems to have been connected with the Chancellor of the cathedral, as his arms are on the Tudor entrance arch. The library possesses a fine hammer-beam roof, which Mr. Reed pointed out as being of the same type and period as Westminster (1397), although only one-third the span, being but 22 feet. He suggested that it may have been connected with the choir boys. The hall would appear to have originally been about double its present length of 31 feet, for the base of an octagonal lantern appears now at one end of the room, and the angels on the adjoining ends of the hammer-beams face inwards, as if they had been twisted round from the horizontal position of the others.

There are several interesting courtyards in the Close. The Elizabethan house at the eastern end occupies the site of the town residence of the abbots of Buckfast.

The next move was to the

BISHOP'S PALACE.

The palace, which is on the south side of the presbytery of the cathedral, retains a considerable portion of the ancient buildings, though much altered. The chapel of St. Mary and the main entrance are of the thirteenth century. Bishop Oldham (1505-19) rebuilt some portions of the palace, but the structures on the eastern side of the porch, parts of which were standing in 1797, are now destroyed, including the great hall, where 100 poor men were occasionally fed. There is a fine mantelpiece of the time of Bishop Peter Courtenay (1478-86). At the rebellion the palace was purchased by the city for £450, and conveyed in 1650 to St. John's Hospital, who leased it to a sugar baker. It was, however, regained by Bishop Seth Ward in 1662. The grounds are bounded on the south-east by the city wall: this, with two



EASTERN PORTION OF REFECTORY SUB-VAULT, GLASTONBURY ABBEY, 1911

of the bastions, which have been refaced, remains in good condition.

The Bishop of Exeter, in giving an account of the building, said that the palace was, with one trifling exception, as it was in 1846, when the last serious work on it was carried out under the guidance of Mr. Christian. The ground plan was substantially that of Bishop Oldham's time. There was one unique feature in that the Bishop of Exeter can walk from his palace into the cathedral without going out of doors. The present approach was provided by Oldham, who seems to have at the same time destroyed the original way of getting into the cathedral.

The last place to be visited was

THE CHAPTER-HOUSE.

The rectangular Chapter-house to the south of the cathedral was begun by Bishop Brewer (1224-44). The lower portion is of that period, with wall arcading of clustered columns, with Purbeck shafts and foliated capitals. The upper part is fifteenth-century work. It was intended to be vaulted, but the existing fine timber ceiling is ascribed to Bishop Bothe, whose arms appear in it.

There were displayed in the Chapter-house some of the greatest treasures of the cathedral library. This included the "Codex Exoniensis," which is the only book remaining of those given to the cathedral by Leofric when he transferred in 1050 the See from Crediton. It is a unique collection of Anglo-Saxon poetry. Another MS. on view was the Exeter Domesday, which contains the minute returns made by the Conqueror's Commissioners at the time of the Survey; from it the Great Domesday was compiled.

By way of conclusion to a most interesting day in the ancient and loyal city, we will quote and endorse the following impression by a travelling architect who visited here just eighty-one years ago: "Exeter wears an important and city-like aspect—compact, respectable, and sufficiently bustling. Were it south of the Alps we should hear of a thousand beauties which now lie unappreciated; for the site of Exeter, charming in itself, is the centre of a panorama, including spots more charming still."

MR. FRANK L. PEARSON, F.R.I.B.A., has been appointed a member of the Committee of Consulting Architects to the Church Building Society, in the place of the late Mr. J. Oldrid Scott.

EXCAVATIONS AT GLASTONBURY ABBEY.

THE ruins of this once famous abbey reveal something of its former grandeur and magnificence, but the extent of the monastic buildings is yet unknown, and the vast enclosure probably holds many secrets. Since the Dissolution in 1539 the abbey has had a chequered history: the influence of time, of weather and of storms, as well as the destructive work of man, all show their mark to-day.

In 1907 the abbey was acquired by the Lord Bishop of Bath and Wells at a total cost of £31,000, in order that it might become the property of the Church of England.

In 1908 the abbey trustees granted permission to the Somersetshire Archaeological and Natural History Society, whose headquarters are at Taunton Castle, to begin excavation work. During the first five years much has been done under the direction of Mr. F. Bligh Bond, F.R.I.B.A., with very interesting results. In 1912 the Society, at the request of the trustees, appointed a special committee to undertake the supervision of the future excavation work.

The work already done is as follows:—

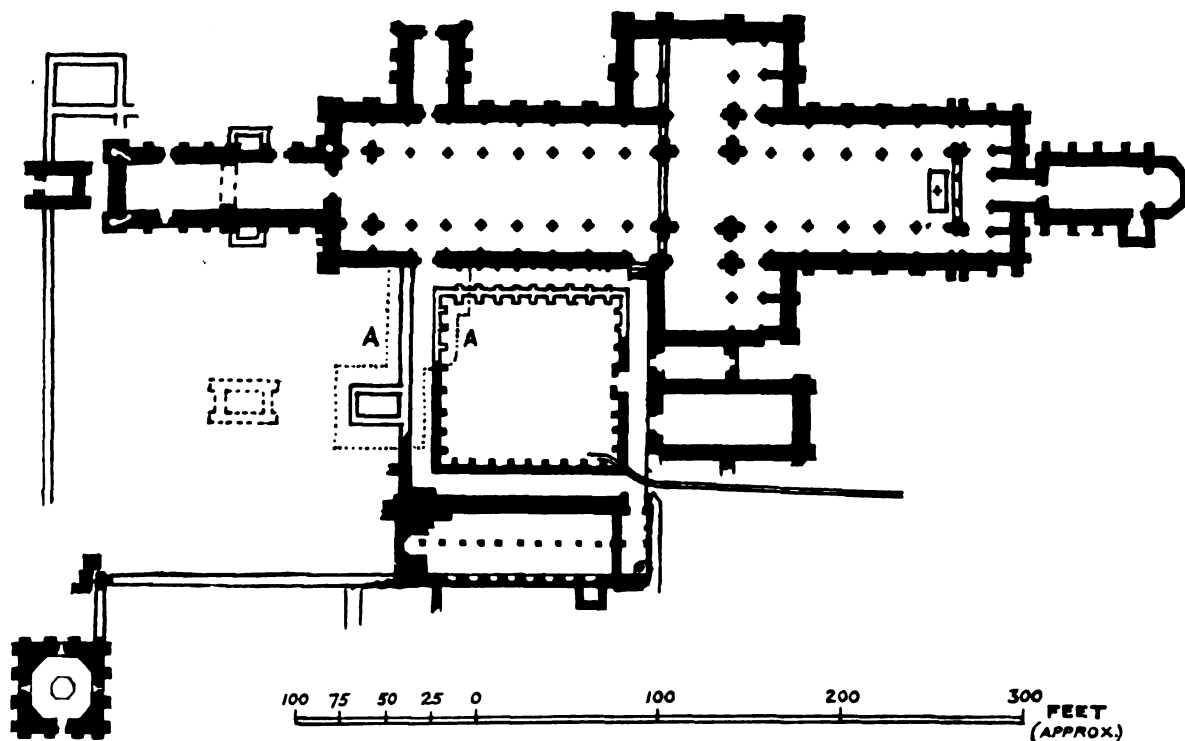
In 1908 an endeavour was made to trace the plan of the abbey, a matter of controversy for many years, and to establish the position of the Edgar Chapel. This was done, and the foundations have been opened out.

In 1909 the area of the high altar of the choir was uncovered, revealing, amongst other things, the foundations of the reredos. Massive foundations were also discovered at the west end of the nave of the abbey church.

In 1910 Mr. Bligh Bond turned his attention to the site of the monastic buildings, and extensive excavations revealed a large vault, with a series of moulded bases which once supported the central columns of the vaulted roof and floor of the refectory. Evidence was also found of the occupation of a part of the abbey buildings by the Flemish weavers, who were installed in the abbey in the time of Edward VI.

In the early part of 1911 the site of St. Dunstan's Chapel, at the extreme west end of the church, was opened out, and many interesting features were uncovered. In this and the following year the position of the great north porch of the abbey was determined; also the foundations of the two western towers; and in 1912 the site of the chapel of the Holy Sepulchre was brought to light.

The cost of this work has been defrayed by subscriptions and donations. The funds already raised are exhausted, and



GLASTONBURY ABBEY.—PLAN.

an appeal has again to be made to continue the excavation work which has disclosed so many interesting features relating to the abbey and the buildings connected with it. It should be noted that the work of preserving the ruins is a separate undertaking, and is in the direct charge of the trustees, who, under the advice of their architect, Mr. W. D. Caroe, F.S.A., have done, and are still doing, much in the way of preserving the ruins.

The actual supervision of the excavation work has from the beginning been in the hands of Mr. Bligh Bond, of Glastonbury, whose architectural and archaeological knowledge eminently qualifies him for the honorary duties which he so generously undertakes.

The work of excavation is expected to last for some years. The sites of the Abbot's house, Prior's lodgings, lay brothers' quarters, Abbot's guest hall, Royal lodgings, infirmary, school, also of the whole of the outlying buildings to the south and south-west, as well as the fish-ponds, have yet to be explored, and are expected to yield valuable results. An income of £250 a year is needed for the efficient carrying out of this work.

The portion selected for this season's work is the cloister garth, marked A on the plan, together with certain portions of ground on the east side of the same.

The committee earnestly appeal to all who are interested in ecclesiastical antiquities, and especially to all lovers of Glastonbury Abbey, either to become annual subscribers or to give a donation towards the excavation fund.

The trustees have shown their interest in, and appreciation of, the work of excavation by promising a contribution of £25 towards the expenses of 1913.

Subscriptions or donations will be gratefully received by the Treasurer of the Glastonbury Abbey Excavation Fund, The Castle, Taunton, Somerset (or by the Society's Bankers, Parr's Bank, Ltd., Taunton).

RURAL HOUSING.

THE National Land and Home League, of which Lord Henry Bentinck, M.P., is President and Lord Saye and Sele Chairman, has addressed a memorial to the Prime Minister urging the importance of fresh legislation for dealing with rural housing. The memorial states that as a result of a circular letter addressed to the Rural District Councils of England and Wales last year, 182 Councils replied that cottages were required in their districts, 261 replied that cottages could not be built without placing a burden on the rates, and 169 Councils declared themselves in favour of State aid for building.

So far as we know, no official inquiry has been made by the President of the Local Government Board to ascertain the views of the Rural District Councils in regard to housing.

so these figures obtained by this League are of considerable value.

The memorial expresses its approval of the principles embodied in Sir Randolph Baker's Housing Bill, which passed its second reading by a majority of 140 last April, and points out the obvious advantages of a grant in aid in respect of the annual loss, instead of a capital grant to local authorities.

The Chancellor of the Exchequer has been asked how many cottages and small houses were erected in Great Britain with the assistance of public moneys in the years 1909-10, 1910-11, and 1911-12 by public utility societies and private persons respectively, and what sums of money were advanced for that purpose. In answer he submitted the following figures showing the total amount of loans approved by the Public Works Loan Commissioners, under the Housing of the Working Classes Acts, to public utility societies and to private individuals, companies, &c. (together with the number of dwellings to be erected), for the years 1909-10, 1910-11, 1911-12, and 1912-13. In 1909-10 to public utility societies loans amounting to £144,692 were sanctioned for 1,298 dwellings, and to private individuals and companies £40,843 for 428. The figures for 1910-11 were £331,657 for 1,426 dwellings and £55,748 for 530; for 1911-12 they were £157,533 for 1,041 and £13,445 for 137; and for 1912-13 they were £466,716 for 3,174 and £6,117 for 127. The totals are £472,833 for 3,301 dwellings.

At Merrow Common, near Guildford, a cottage has been built by Mr. St. Loe Strachey, with the object of showing that it is possible for a landlord, who is willing not to reckon the cost of the land, to build a perfectly comfortable and sanitary cottage with three bedrooms, a good parlour-kitchen, and a scullery at a cost of £150. A landlord, it is claimed, could afford to let such a cottage for 2s. 6d. a week, the tenant paying rates. The cottage is constructed of weather-boards fitted to a timber frame, the interior being plastered. The weather-boards have been used not because they were cheaper than cement or brick, but because they are more weather-proof than most blocks or slabs or than a thin brick wall. The cottage has been built by a firm of local builders, and not by a builder who specialises in cheap construction.

Mr. Strachey, however, is not satisfied. He believes that a cottage costing £100 could be built with three bedrooms, a good kitchen, and a scullery, and he makes a sporting offer to allow any man who likes to do so to put up a model £100 cottage on the land at Merrow Common. If the cottage would satisfactorily stand the test of wind and rain and show that it was not a butterfly house he would purchase it for the £100 expended, plus £10 for a year's loss of interest on capital.

RAINHAM, WENNINGTON AND AVELEY.*

By Mr. HAMILTON E. H. BIDEN.

RAINHAM.

RAINHAM, Essex, although only twelve miles from the densely populated district of Whitechapel, still retains much of its rural character. It is in the Hundred of Chafford, and stands on a small rivulet called the Ingrebourne, at about one mile from its outfall into the Thames at Rainham Ferry.

The name has at different periods been variously written Raineham, Rayneham, Reinham, Renaham, and Reynham, and is probably derived from one of the two Saxon words Rein, clean, or Ran, a wild goat, and the suffix ham, so



RAINHAM CHURCH, FROM THE SOUTH.

meaning either the clean homestead or the homestead of the wild goat.

In Saxon times the lands in and around this parish belonged to Alfi, or Alsi, a freeman, Alvard, Lesstan, and a priest whose name is not known.

At the time of the Norman Survey they were held by Odo, Bishop of Bayeux, and his under-tenant Hugh, Robert Gernon, Walter de Doai, and Haghebern, and from thence arose the several manors of Southall, Berwick, Gerberville or Gerpius, and Launderers.

The church, dedicated to SS. Helen and Giles, is one of the oldest parish churches in the county, and undoubtedly occupies the site of a still earlier religious house.

The present building was erected by Richard de Luci, Lord of Dixe, in Norfolk, Governor of Falaise, and Sheriff of Essex and Herts, sometime between 1150 and 1160, and was given either by him or by King Henry II. to the Abbey of Lesnes in Kent, the Abbots of Lesnes thereby becoming Rectors of Rainham.

King John confirmed to the donation of Hugh, son of Fulk Peynell of Renham, and thereupon the great tithes were appropriated to them and a vicarage endowed, the advowson of which continued in the convent until the suppression of the monastic houses, when they were granted to Cardinal Wolsey, upon whose fall from Royal favour they reverted back to the Crown.

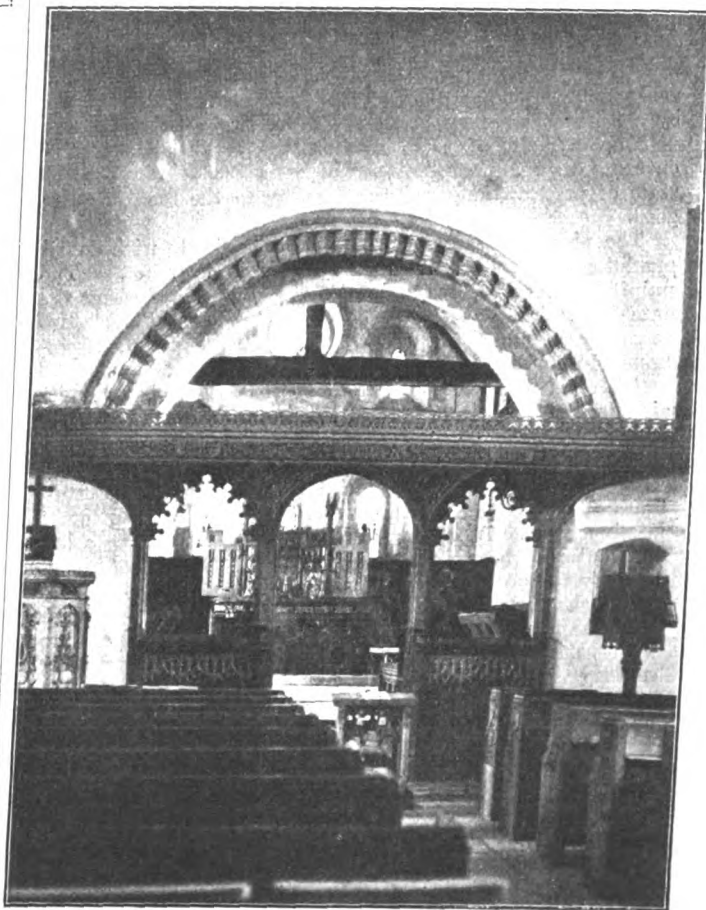
King Henry VIII. exchanged them on May 29, 1536, with Sir William Weston, Prior of St. John's of Jerusalem, for the manor of Paris Garden in Southwark and other lands in Surrey. This of Reynham was appropriated to them by Act of Parliament, but only remained in their possession about eight years. The rectory and advowson were then granted, together with Barwyke, to Sir Robert Southall. From him they passed, as the manor of Berwick, to the families of Freeman and Finch, and finally to William Blackburn, Esq. The vicarage house being utterly decayed, Samuel Keckwick, vicar in 1701, purchased a house, with grounds and garden, for a habitation for his successors, and in 1710 William Finch, Esq., the then patron, rebuilt it at his own expense. This building, nearly opposite the church, still stands, though much altered, for about 1897 it had again become so dilapidated as to be considered unsafe, and the

present vicar was compelled, largely at his own cost, to thoroughly restore such portions as were restorable and make certain additions suitable to modern needs and requirements.

In King Edward III.'s reign a chantry was founded here by Sir John Staunton for the good estate of Isabel, the King's mother, himself, and Alice his wife. It was built in the churchyard, and had a small chapel dedicated to All Saints. In 1391 King Richard II. gave licence to John Shipman and William Lucas to endow it with 22 acres of arable land in Reynham and Aveley; but the revenue gradually falling to £1 13s. 4d. per annum, no chaplain could be found to accept office, so in October 1521 Richard Fitz-James, Bishop of London, with the sanction of the patron, Bishop Nix, lord of the manor of Southall, dissolved the chantry and converted it into a free chapel to be enjoyed by an unmarried layman, who should be absolved from all the obligations of a chantry priest, but was enjoined to say daily the Psalm for the repose of the soul of the founder, &c. He was also once a quarter to procure a priest to celebrate the exequies and mass for the dead, the possessor to be present, and to offer one penny at each mass to be distributed by the priest; and he was also to keep the chapel in repair.

In the Book of Chantries the value, after it came to a layman, is given as £6 10s., the possessor then being one Nicolas Lental. Sir Edward Southwell had a grant of all belonging to this free chapel, and died possessed of it, excepting one small parcel thereof, with certain croft called Chapel-land and appurtenances worth 35s. per annum, and even these did probably really belong to the chapel, as there is apparently no record to show how it came to be excepted from his grant.

The Book of Alienations mentions lands, meadows, pasture, and feedings lying within Berwick Park and other lands called Jordanslands and Broomcroft, &c., as being part of the endowment of this chantry.



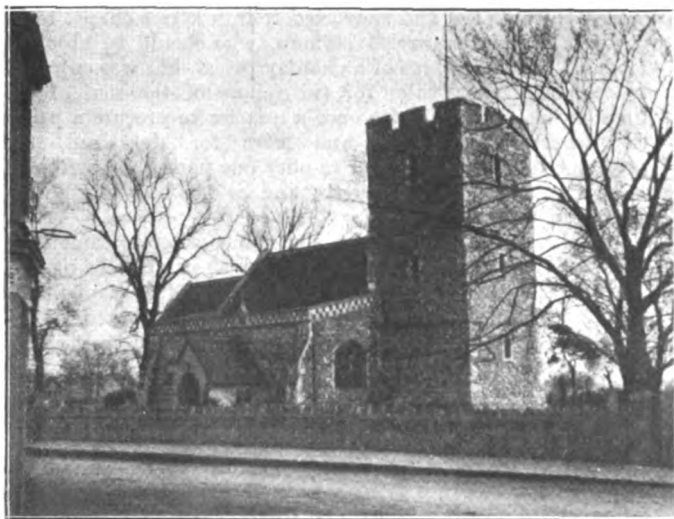
RAINHAM CHURCH, SCREEN.

The church as it stands to-day is a solid flint and brick structure, and comprises nave, north, and south aisles, chancel, and western tower. The body of the church is Norman, with window openings excepting those of the clerestory, which are considered unique examples of Norman work of much later insertion. The low, massive, heavily buttressed tower is Early English, the red brick embattled

* A Paper read at a meeting of the Upper Norwood Athenæum.

portion being a restoration of the original stonework. It had been much neglected and was rapidly becoming disintegrated, when in 1896 the Rev. C. R. N. Burrows, then curate-in-charge, took the matter seriously in hand. He succeeded in arousing the interest of the Bishop of the diocese, the Bishop of Colchester, and other influential Church dignitaries, formed a strong committee and commenced to raise the money required (some £2,500) to carry out the restoration advised by the Church's architect, the Rev. Ernest Geldart, which work has been continued and almost completed by the present vicar.

The chancel arch is Norman, with plain moulding, and in the south wall of the chancel is a priest's door, having a Norman arch with good chevron mouldings and grotesque



WENNINGTON CHURCH, FROM THE NORTH-WEST.

heads to the small capitals. There is also a simple ambry with a straight-sided pointed head. The chancel screen, of which only the lower panels are the original woodwork, is a very clean and clever piece of carving, executed in Antwerp by a Flemish wood-carver.

To the right of the screen in the south aisle is the entrance to the rood stairs, which are still in a perfect state of preservation, and the opening to the rood is quite good.

The pier arcades have massive square shafts with dentil mouldings to the capitals carrying round arches. The pulpit is a very fair example of Jacobean work of about the date 1625. The font is a plain roughly-hewn stone basin, generally supposed to be of Saxon workmanship, superimposed upon a squat shaft and base of a later date.

There is no old glass, but at the east end of the south aisle is a rather nice coloured window to the memory of the late Rev. Nicholas Brady, M.A., Rector of Wennington, who died in 1911, aged 72 years.

The most noticeable memorial is a late fifteenth-century brass of a civilian and his wife, but the inscription is missing. There is another in the south aisle showing a lady in a butterfly head-dress, but here again there is nothing to identify the deceased.

At the eastern end of the north aisle is a very curious tomb-shaped muniment chest, covered in leather and bound with iron strappings. The date is believed to be fifteenth century.

In the tower are three bells, which, though sweet in tone, are somewhat below pitch.

A list of vicars from 1327—John Godwyn, down to the present, the Rev. Thomas William Ward, M.A., who was appointed in 1897—is displayed in the south aisle. Charles Churchill, the poet, was curate here under his father, who was vicar from 1756 to 1758.

WENNINGTON.

The village of Wennington stretches along the low uplands, overlooking the marshes bordering the Thames, which extend for about two miles, forming what is known as the Great Coldharbour Point, opposite Erith.

Its earliest name seems to have been Wentuna, and in Domesday Book we are told it has always been held by St. Peter's for a manor and 11½ hides. Then there were three villeins, now two; then three bordars, now one; then two serfs, now none; then one team in the demesne, now

half a one; then one team of the homagers, now half a team; one horse, one cow, four swine, and sixty sheep. It was then worth 40s., now 60s.

Ullius, a freeman, gave St. Peter's half a hide, but one Robert forestalled them in the possession, and it yields 20 pence per annum.

The Abbot and convent of Westminster had the gift of this rectory till 1540, when it was granted by Henry VIII. to Thomas Thirleby, Bishop of Westminster; but upon the suppression of that see, Queen Mary in 1554 granted the advowson of this living to Edmund Bonner, Bishop of London, and it has continued in his successors since.

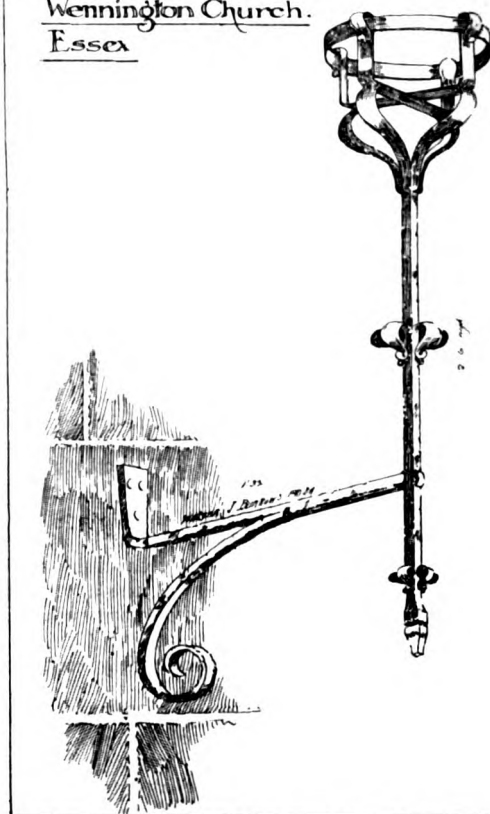
The church, dedicated in honour of St. Mary the Virgin and St. Peter, is small but venerable-looking, and consists of nave, north and south aisles, chancel, and western tower and belfry, which last was, according to James Thorne, F.S.A., writing in 1876, surmounted by a tall shingled spire.

The greater part of the church is Early English but it has undergone many alterations, and the interior is much modernised.

The chancel is of Transition character, but a window in the chancel is Norman, and the doorway to the priest's entrance is also Norman, with dog-tooth mouldings.

The nave is of two bays only, and calls for no special comment. The south aisle was only rebuilt and opened about sixteen years back, it having been for many years in a state of decay, covered in with lath and plaster. The belfry contains but one bell, upon which, in raised letters, is recorded the name of Thomas Gibbs, churchwarden, and the date 1662. It is said that at one time the tower contained three bells, but that the others were some say stolen, some state used to make cannon at the time of the Civil War, and others affirm sold to pay the cost of repairing the tower.

Hour Glass Stand. Wennington Church. Essex



At the east end of the north aisle is a small simply decorated piscina. The only mural memorial of note is also here, and has an inscription, which is as follows:—

Hodie sumus:

Cras erit in vili putre cadauer humo.

A free translation of which may be rendered: I am here to-day; soon I shall be a rotting corpse in the earth. Underneath in English is the doggerel couplet:

An age of cares: a world of sorrow:

Alive to-day: and dead to-morrow.

The date is 1625.

1, 1913.

rs. now half a
d sixty sheep.

If a hide, but
t, and it yields

and the gift of
Henry VIII.
but upon the
64 granted the
er. Bishop of
since.

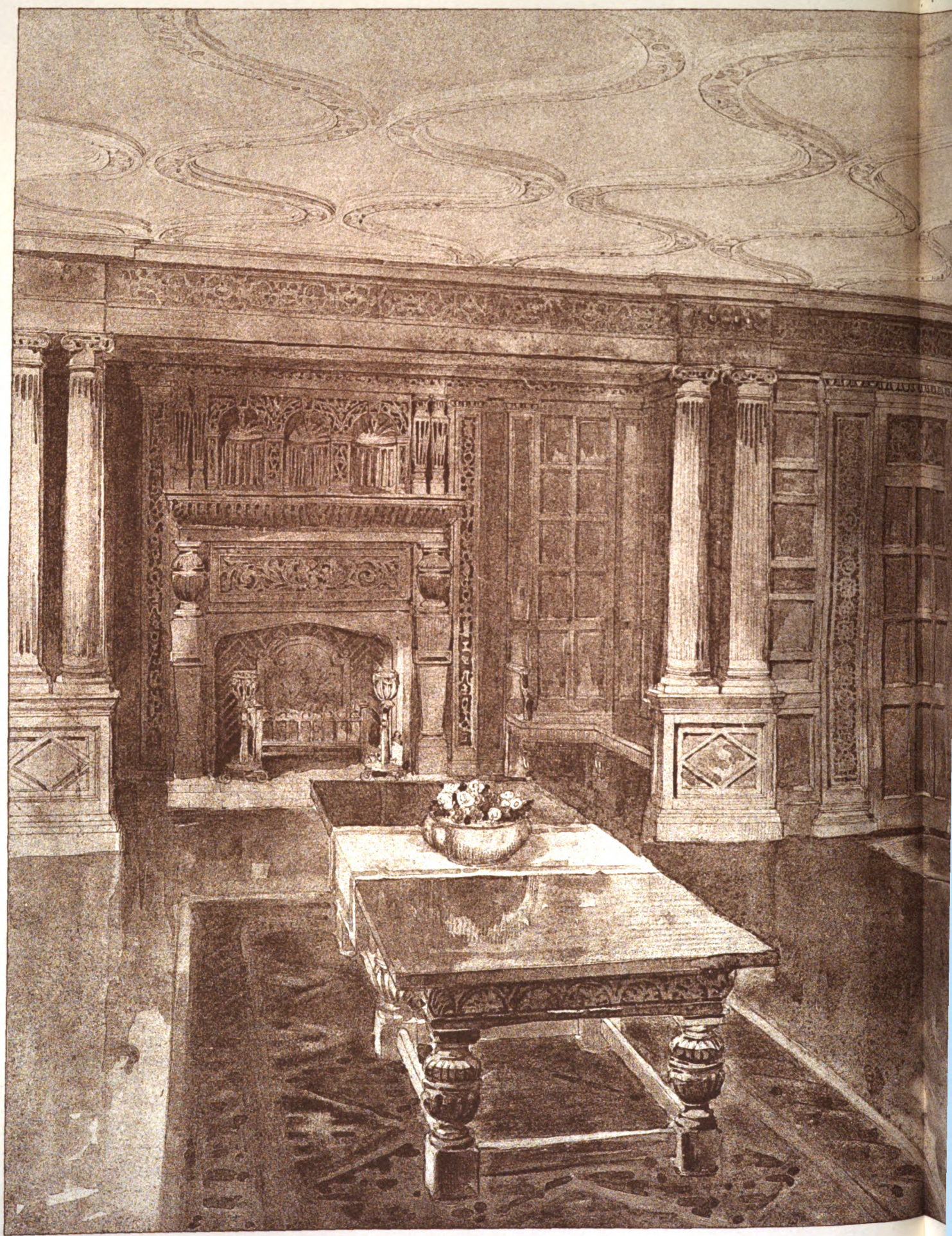
ary the Virgin
and consists of
western tower
James Thorne
tall shingle

nglish but it
rior is not

a window in
the priest's
ngs.

r no special
and good
ny year
aster 2
ed for
angle of
tore
sat in
the
surre





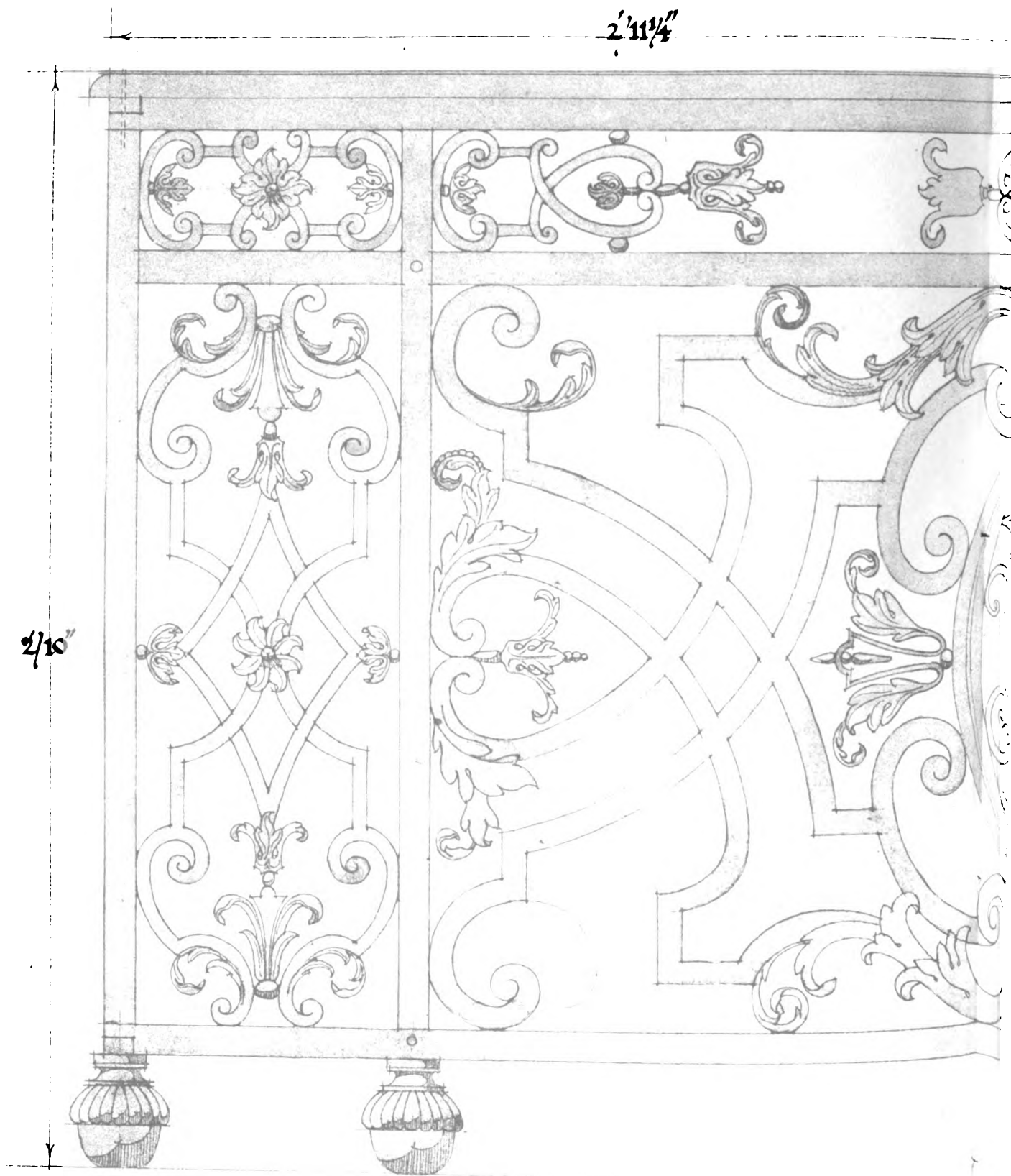
DESIGN FOR HALL IN JACOB
By Mr. CHARLES BERNARD

Aug. 1st 1913.



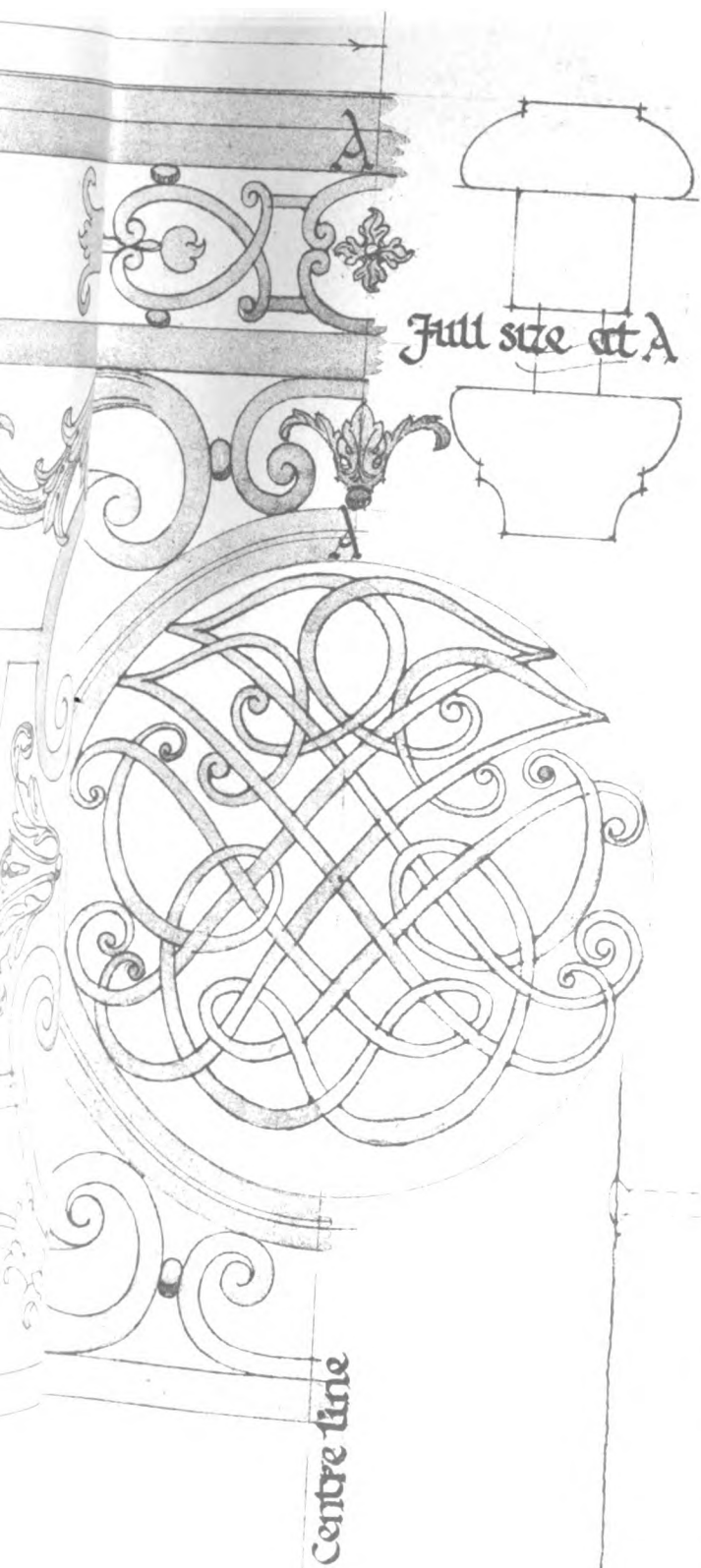
"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

JACOBESQUE STYLE.
HALL
BERNARD.



Elevation





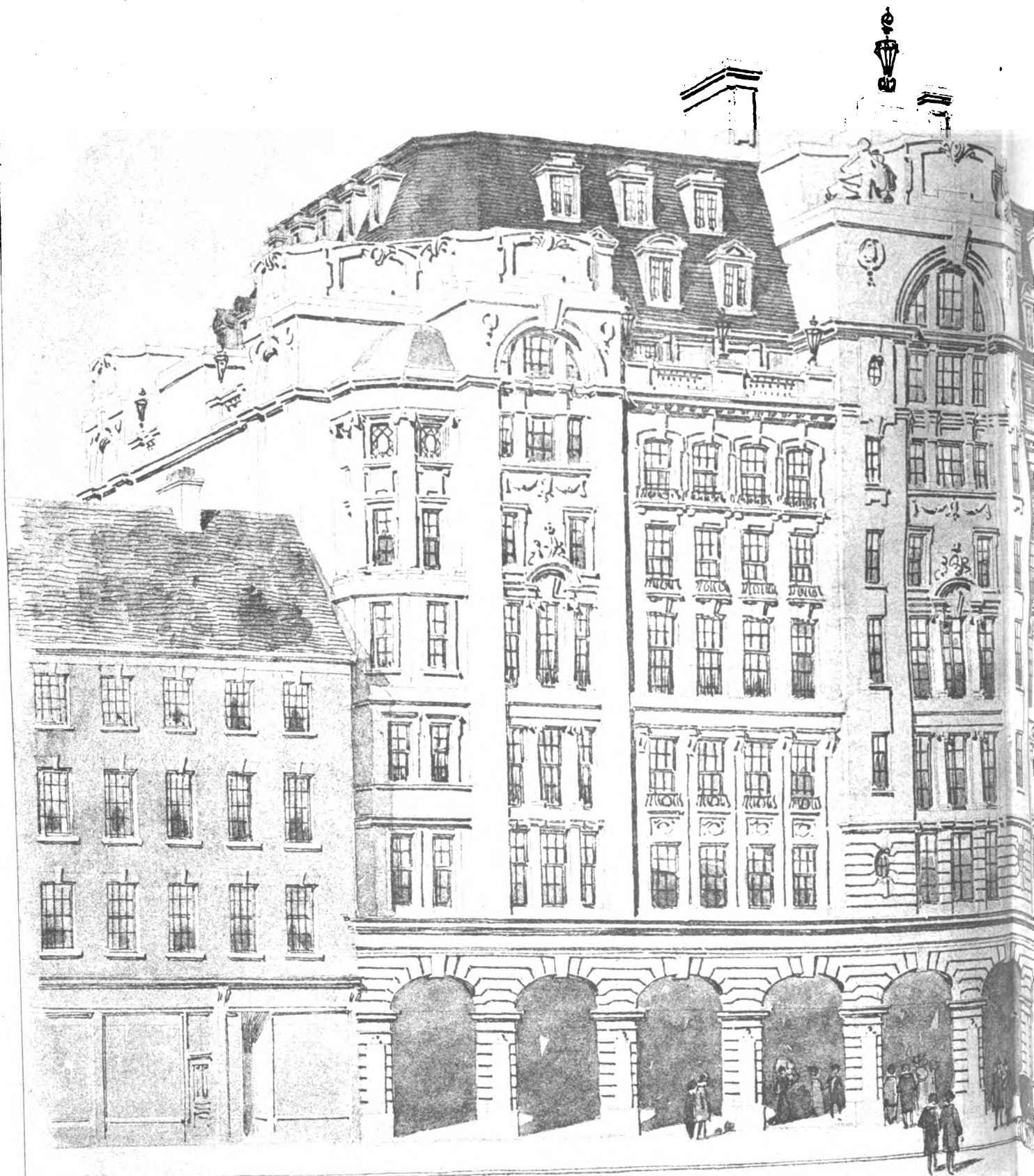
Balcony Front in Wrought Iron

From a house in Paris
now in the
Victoria & Albert
Museum
(late 17 century)



24 Inches
2 Feet

INK PHOTO SPRAGUE & CO. LTD. 80 & 70, DEAN STREET, SOHO, W.



C. N. E. 18

Copyright 1913.



C. R. R. L. B. A.
64 Victoria Street.
London. W.

DISTRICT RAILWAY STATION. LONDON.
B. A. Architect.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO W.

Digitized by Google

There are also one or two old flat tombs with Lombardic lettering.

The church possesses no old silver, but a wrought-iron hour-glass stand is a somewhat rare feature, and a muniment chest, said to be one of four only in England, of the date 1280, though much in need of repair, is still a very valuable relic of past ages.

A list of rectors is shown in a glazed frame inside the entrance, beginning with Robert de Cornerde, 1294, under the patronage of King Edward I.

BELHUS, the seat of Sir Thomas Barrett-Lennard, Baronet, M.A., J.P.

(Viewed by kind permission of Alfred Stead, Esq.)

This estate takes its name from the Belhus family, which flourished in the reigns of Kings John and Henry III., and came originally from Cambridgeshire.

Richard de Belhus had a confirmation from King John in 1200 of all the lands held in Rainsden by Reinfred de



Incantur Radulphus de Knewnton Obitus
domini Johis ante facti in picholai episcopi
anno domini milmo. ccc. Per. tra. dmat. E

Bruer. His son, Sir Theobald de Belhus, had two sons, Richard and Thomas. Sir Richard, the eldest son and heir, having only one daughter, Alice, married to Sir Nicolas Barrington, gave the manor to his brother, Sir Thomas, in 1283, who had acquired in 1274 of John de Burgh, son of Hubert, Earl of Kent, the manor of Stanway, which afterwards became the principal seat of the family, and where the manor house still bears the name of Belhouse. He also held Newington Manor in Kent, which was known afterwards as Newington Belhus.

This Sir Thomas was sheriff of Cambridgeshire from 1282 to 1289, and was also made by King Edward I. Seneschal of Ponthieu, a province the King had acquired in right of his Queen.

By Florentia, or Floria, his wife, he had three sons: John, his successor at Stanway, who received knighthood from Edward I.; Nicolas, and William.

Nicholas seated himself at Aveley, and is buried in the chancel of St. Michael's Church.

By his wife Odingfel he had a son Thomas, who married Elizabeth, daughter and heiress of Richard de Nartone, and with her received large estates in this and the adjoining parishes, and most likely this one of Belhus, as in some old deeds and court rolls it is spoken of as Nortons, alias Belhus. He died in the latter part of the reign of King Richard II., leaving his son John heir and two daughters,

Alice and Isolde. John died without issue and was buried with his father at Strafford, Langthorne.

His two sisters and co-heirs made in 1397 a partition of his inheritance. Alice, the elder, married John Barrett, Esq., and resided at Belhous.

John's son and heir Thomas married Matilda, daughter of John Pointz, of North Okenden. Robert Barrett, his eldest son, in 1548 purchased from his cousin, Walter Serjants, the moiety of the manor of Nortons, alias Belhus, and became sole lord thereof. He was twice married, first to Margaret Critchley, by whom he had no issue, and then to Margaret, daughter of William Knolles, probably of the family of the Lords Knolles, her arms being the same as theirs, by whom he had a son, John, who became eminent as a lawyer. Leland speaks of him as being most learned and eloquent. This gentleman built the present mansion in 1525, and died October 4, 1526. Though married four times, he left no sons. His grandson, Edward, therefore succeeded him. He was high sheriff of Essex in 1571 and died 1586.

Again a grandson, this time a mere child, succeeded, but being a minor, he took no active part in the management of the estates until, returning from a protracted journey abroad, he was knighted by King James I. in 1618, and was granted a charter of free warren in his manor of Belhouse, &c. On October 17, 1627, he was created Baron Newburgh of Fife, and on July 20, 1628, became Privy Councillor to Charles I., on August 20, 1629, Chancellor of the Exchequer, and shortly afterwards Chancellor to the Duchy of Lancaster, which honour he retained until his death in 1644.

In his will, dated March 17, 1643, he left the manor of Belhus to his cousin, Richard Lennard, Esq., a son of Lord Dacre by Dorothy, his second wife, on condition that he took the name and arms of Barrett, which he did. He resided at Belhus, became sheriff of Essex in 1679, and died at the mansion 1696.

His son Dacre succeeded and died in 1724. Richard, his son, had predeceased him, but left a son born in 1717, named Thomas, who succeeded to the property, and also to the barony of Dacre through his mother, the Lady Anne, who died in 1755, and thereupon took his seat in the House of Lords as Baron Dacre. The present owner, Sir Thomas Barrett-Lennard, Bart., is a direct descendant.



'BELHUS,' ESSEX.

Belhus is an imposing castellated Tudor mansion of red brick with stone dressings, having projecting towers and bays, situated in an extensive park, well furnished with oaks, elms, and other forest trees, and stocked with red and fallow deer. Formerly there was a heronry, famous when hawking was still the sport of kings, but which as far back as 1760 had been broken up. Morant, writing in 1768, says, "For some years the herons have not been suffered to build, it not being considered worth the inconvenience."

Entering by the principal doorway, over which is carved the arms of the Barrett family, we pass through an entrance lobby into the hall, which is of goodly dimension, showing a fine Tudor fireplace with the original dogs and andirons. It is well furnished with fine carved oak settles, Roundhead armour, spears, pikes, halberds, riding jacks, leather drinking-cups, and other valuable relics and curios.

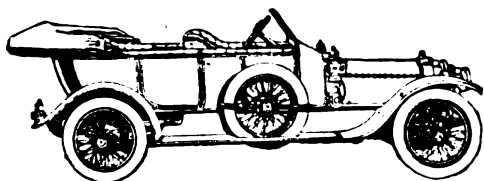
The apartments at either end are hung with choice French tapestry, and contain some quaint old furniture.

INVINCIBLE TALBOT

Since June 1st Talbot cars have won 19 Gold Medals, 13 Silver Cups, and 4 Special Awards in hill climbing and speed competitions open to all makes of cars.

Mid-Warwickshire A.C. Open Hill Climb, July 19th, 25 h.p. Talbot 1st — fastest time of day, winning 2 Gold Medals and the Barker Challenge Cup in the unlimited event open to all makes and sizes of cars.

These successes emphasise the superior speed and power of the "Invincible" Talbot—the first essentials of an efficient Touring Car.



12 h.p., 15 h.p., 20 h.p. (6 cylinder) and 25 h.p. models.

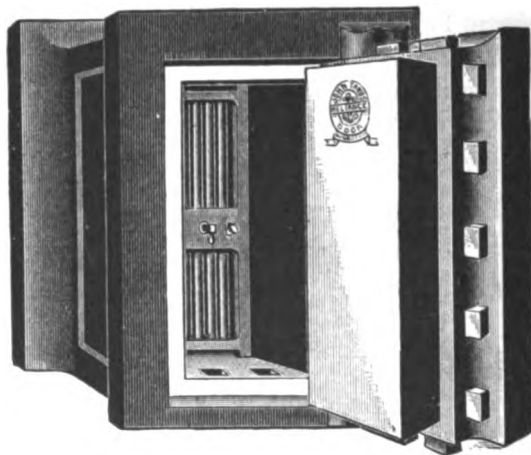
CATALOGUE ON REQUEST.

CLEMENT TALBOT LTD.

Automobile Designers and Engineers.
Barlby Road, Ladbroke Grove, London, W.

ESTABLISHED 1795
FOR SECURITY AND VALUE
ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS
THE GREATEST SECURITY
FOR ANY GIVEN EXPENDITURE, BACKED UP BY
THE HIGHEST RECORD—
118 Years without a single failure against
either FIRE or BURGLARS.

Catalogues and Estimates from **JOHN TANN, Ltd.**
117 NEWGATE ST., LONDON.

PEN-YR-ORSEDD

SLATE QUARRY CO., Ltd.,
Supply Best and Seconds Red and Purple

SLATES

Apply to the Manager,
Pen-yr-Osedd Office, Carnarvon.

TO MERCHANTS AND THE TRADE.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

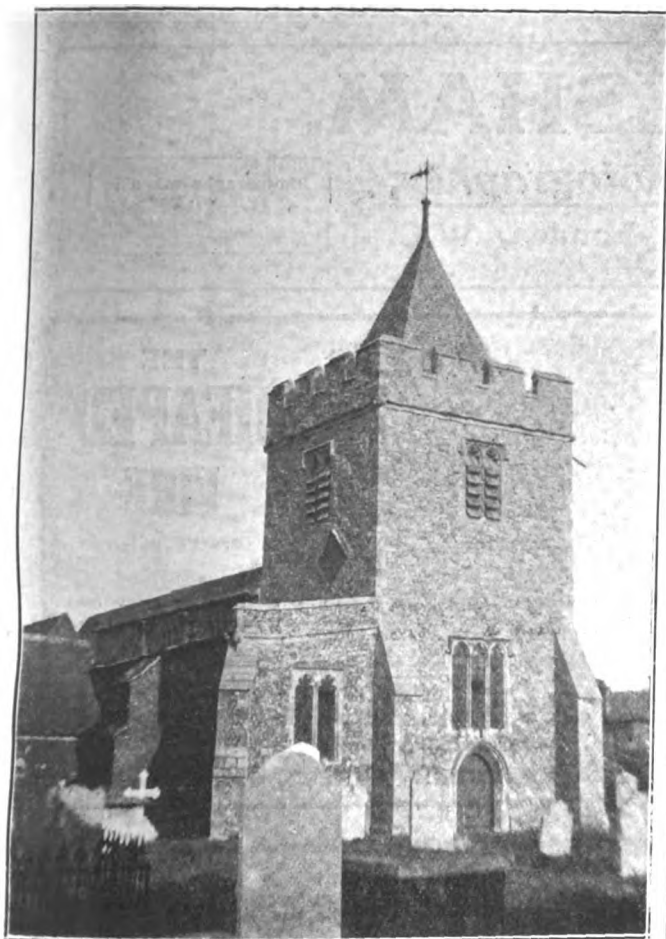
Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

the left of the entrance has a concealed doorway leading into a small but interesting oak-panelled chapel or oratory.

The mansion was originally built in the form of a quadrangle, but the open courtyard was, at a later date, roofed-in to form a great dining hall, which was again subsequently divided by having a floor inserted, so forming what is now on the ground level the dining-room, and above the drawing-room. This is a very spacious apartment, having a slightly domed or concave ceiling very pleasantly decorated in blue



AVELEY CHURCH, WEST TOWER

and gold. The special feature in this chamber is the very finely carved Jacobean mantelpiece. Formerly there were portraits of Queen Elizabeth and Elizabeth Woodville, the wife of King Edward IV. These have been recently removed, but there are still some very fine paintings by English and foreign artists.

In the various rooms forming the quadrangle are numerous almost priceless articles of furniture, comprising examples of Early English, Flemish, Dutch, and French workmanship; and in one, said to have been occupied by Queen Elizabeth on the night preceding the defeat of the Spanish Armada, the richly-carved bedstead and wardrobe still remain as in the days of the Virgin Queen.

Scattered throughout the mansion are many valuable pictures by such masters as Pompeo Battoni, Albano, Hudson, Trevisani, and Sir Peter Lely.

Altogether Belhus is replete in interest and historic associations, and, like many another ancestral home, is said to be haunted, in this particular instance by the wraith of an old female domestic, which the late Honourable Grantley Berkeley, writing in 1866, says he saw seated in front of and staring into the fire in the bedroom he then occupied. The mansion was new fronted and otherwise much altered by Lennard Barrett, Esq., afterwards Lord Dacre, in 1750.

AVELEY.

The village of Aveley has been variously called Alvi, Averhill, Avothley, Avele, Alvethley, Alvyhele, Alviela. Anveliers, Alvrila, Alumeleye, Anvelers, and by many other names. The derivation is uncertain. Some authorities favour Aelf, a fairy, and ley, a woody pasture; while others think it more likely to have gained its appellation from Alvid, a Saxon freewoman, who is known to have held land in the neighbourhood. In the time of Edward the Confessor

Suene was the chief landowner, and from Domesday Book we learn that the property was held by Odo, Bishop of Bayeux, at the time of the Great Survey.

The church (St. Michael's) was founded in 1178 by Richard de Luci, and was at first a sinecure rectory to the Abbot and convent of Lesnes. In 1327 the first vicar was admitted at the presentation of the rector, but no vicarage was endowed until 1330, when, at the petition of the convent, Stephen de Gravesend, Bishop of London, appropriated the great tithes to them and endowed a vicarage, reserving, however, the collation to himself and his successors for ever. Later the advowson was in the control of Cardinal Wolsey, and was ultimately granted by Henry VIII. to the Dean and Chapter of St. Paul's, with whom it still remains.

The exterior of the church is of flint and stone, patched and buttressed with ugly brickwork. It consists of nave, north and south aisles, chancel, western tower, and north porch. The tower was originally finished with a tall spire, but this was blown down in the great storm of 1703.

The nave is of three bays, divided from the aisles on the south by square piers supporting round arches, and on the north by round piers bearing Early English pointed arches. The clerestory windows are Early English.

There is no chancel arch, and the chancel screen appears to be quite modern, excepting perhaps the lower portions, which may be the original work. The pulpit is Jacobean and bears the date 1621. The font is Norman, of Purbeck marble, having a stout central shaft, with thinner columns at each angle and a large basin with plain arcade panels.

The church contains several interesting memorial slabs and brasses, chief among which is one to Radulphus de Knevynnton. It gives not only the costume, but the day of the week, the festival of the saint and the dominical letter



AVELEY CHURCH, INTERIOR.

of the year in which he died. The inscription is as follows:—

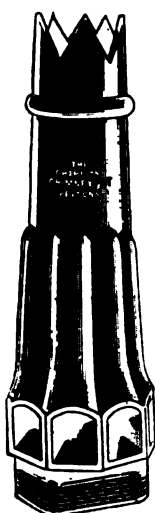
Die jovis ante festu sci Nicholai Episcopi MCCCLXX. lra dmccl F.

The effigy is in full armour, with two-handed sword on left side and a stabbing sword or dagger on the right, under a cusped arch.

Another mutilated brass represents an infant in swaddling clothes, or, as James Thorne and others think, shows the child buried in woollens, a practice which at about this

PECKETTS'Workmanship and Materials of the
Highest Quality.Built to any Specification
or Gauge.**LOCOMOTIVES****PECKETT & SONS, Atlas Locomotive Works, BRISTOL.****A. E. WALSHAM,***Architectural Photographer,***60 Doughty Street, London, W.C.**Official Photographer
to
H.M. Office of Works.Photographs taken in
any part of the country
— at shortest notice. —

Telephone : 3600 Central.

The principal feature of
the CHAMPION CHIMNEY POT is
its magnificent updraft.For many years the
"Champion" has been speci-
fied by LEADING ARCHITECTS,
and has sold in large numbers.Architects speak highly of
its SMOKE-CURING and VENTI-
LATION qualities, and admit
it to be of excellent design.Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.,
Ltd., 105 Albion St., LEEDS.**THE
'HEAPED'
FIRE**

(Bratt's Patent)

is scientifically constructed
to generate great heat
with economical fuel con-
sumption.

Sole Makers—

BRATT, COLBRAN & CO.

and the HEAPED FIRE COMPANY, LTD.,

10 MORTIMER STREET, LONDON, W.

BE SURE YOU PURCHASE**Genuine "Willesden" Green
Canvas****BEWARE OF FOREIGN AND ORIENTAL IMITATIONS.****W. M. DUNCAN TUCKER & SONS, LD.**TELEPHONE
2
TOTTENHAM.**TOTTENHAM. N.**TELEGRAMS
"HORTICOLE"
LONDON**JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN**

time was enforced by Act of Parliament. It is to the memory of Elizabeth, daughter of Edward Bacon, died 1583, aged 13 weeks.

There are several monuments to the various branches of the Barrett family, and at the entrance to the chancel is a marble coffin-shaped slab, the memorial of an unnamed priest. The tomb of the time Edward I. in the chancel is believed to be in memory of Nicholas de Belhus.

There is a mural tablet to the memory of Isolda de Belhus and her children, and another to Edward Barrett, Esq.

The arms of the ancestors of Sir Barrett-Lennard, Bart., are displayed in the chancel window, and an oil painting by Lely depicting the Crucifixion over the altar was the gift of the Baroness Dacre.

In the tower are five bells, one of which bears date 1400 and the words "S. Pet. Ora pro Nobis."

In concluding this résumé of the places visited, I desire to record that I have obtained much of my information by consulting such authorities as Morant's "History of Essex," the translation of Domesday Book, Thomas Wright's "History of Essex," Suckling's "Antiquities," Murray's "Essex," Leland's writings, and the works of James Thorne, F.S.A., to all of which I recommend members who desire a more detailed account than it is possible to give in the limited space at my disposal.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Aylesbury.—Fifty artisans' dwellings, Oxford Road.
Isolation Hospital: additions. Mr. W. H. Taylor, Council surveyor.

House, Ascott Road, for Mr. R. Jones.

Five houses, off Highbridge Road, for Mr. Southam.

House, High Street: additions, for the Aylesbury Gas Company.

Chalfont St. Giles.—House, Rickmansworth Road. Messrs. Wood, Jarvis & Muir, R.I.B.A., architects (of Beaconsfield and Gerrard's Cross).

Chalfont St. Peter.—House, Kingsway. Messrs. Robinson & Roads, architects, 1 Station Parade, Beaconsfield (also Gerrard's Cross and London).

Chesham.—Twenty workmen's cottages, for the U.D.C.

Chesham Bois.—House, Chiltern Road. Mr. W. R. Davison, architect, 6 Duke Street, Adelphi, London, W.C.

Drayton Parslow.—P.M. Chapel: additions.

Great Horwood.—Riding School, for Mr. B. G. Bishop.

Little Kingshill.—House, for Mr. A. Nash.

Seer Green.—Golf Club House. Mr. C. D. Hamp, architect.

Slough.—Council School, Chalvey.

Terriers.—Forty-two houses, for the Wycombe Town Council.

Wooburn.—Council School.

CHESHIRE.

Stockport.—Technical School extension (£6,000 to £7,000).

CORNWALL.

St. Austell.—Twenty-two workmen's dwellings.

CUMBERLAND.

Barthwaite Croft.—Farm buildings, for Mr. A. Gibson.

Holme Head.—Warehouse: extension, for Messrs. Ferguson Brothers.

Scalesceugh.—Mansion. Mr. A. Paterson, F.R.I.B.A., architect, 266 St. Vincent Street, Glasgow.

Wigton (near).—Mansion at Killhow: conversion into County Sanatorium.

DERBYSHIRE.

Derby.—Borough Asylum: additions (£3,500).

DEVON.

Colyton.—Workmen's dwellings.

Dartmouth.—Boys' Council School.

Exeter.—University College: men's hostel (£12,000).

Kingsbridge.—Grammar School. Mr. P. Morris, A.R.I.B.A., County education architect, 1 Richmond Road, Exeter.

DURHAM.

Consett.—Baptist Sunday Schools for 300 places. Messrs. George Baines (F.R.I.B.A.) & Son, architects, 5 Clement's Inn, London, W.C. Messrs. W. Ayton & Sons, contractors, Benfieldside, Blackhill (£1,500 to £1,600).

ESSEX.

Hutton and Shenfield.—Baptist and Congregational Union Church.

Southchurch.—Belle Vue Baptist Church for 700 sittings (£1,000).

Stambridge.—Block of four workmen's dwellings (£700).

Mr. A. C. Madge, architect.

HAMPSHIRE.

Park Prescott.—County Asylum for 1,600 patients (£355,000).

Portsmouth.—Council School, Meon Road. Mr. A. E. Cogswell, architect, Prudential Buildings.

HERTFORDSHIRE.

Barnet.—Isolation Hospital: extensions. Messrs. White, Son & Pill, architects, 13-15 High Street.

ISLE OF WIGHT.

Newport.—Picture Palace, corner of Lugley and St. James's Streets. Messrs. Stratton & Millgate, architects, 21 Quay Street.

KENT.

Old Charlton.—Public Elementary School (for 300 places), Charlton Road.

LANCASHIRE.

Leigh.—Spinning mill for 85,000 spindles.

Liverpool.—University School of Public Health, and Bacteriological Departments, &c. City surveyor.

Manchester.—St. Anne's Church, Brindle Heath, Pendleton.

LINCOLNSHIRE.

Carlton Scroop.—Four cottages for Grantham R.D.C. (£700).

Gosberton.—Workmen's cottages.

Lincoln.—Infirmary. Mr. W. G. Watkins, architect, St. Edmond's Chambers, Silver Street.

Workhouse Laundry.

MONMOUTHSHIRE.

Cross Keys.—Cinema. Mr. J. W. Aldiss, architect, Fording, Newbridge.

NORTHAMPTONSHIRE.

Northampton.—Factory, Stimpson Avenue, for Messrs. G. Green & Sons, Ltd.

NOTTINGHAMSHIRE.

Mansfield.—Council Schools, Chesterfield Road (£11,800).

OXFORDSHIRE.

Thame.—Church Hall. Mr. J. T. Robinson, architect.

SHROPSHIRE.

Much Wenlock (near).—King Edward VII. Memorial Sanatorium, Shirlett: extension for an additional thirty beds (£2,300).

SOMERSET.

Bath.—Secondary School (accommodation for 250 students).

STAFFORDSHIRE.

Stoke-on-Trent.—Children's Workhouse Hospital (£5,350). Messrs. Ball & Robinson, contractors, Booths Road; also

Workhouse Infirmary: Nurses' Homes: additions and alterations (£1,450).

Wednesbury.—Metallurgical and Engineering Institute, Walsall Street (£18,000).

SUSSEX.

Bognor.—Council School.

WARWICKSHIRE.

Coventry.—Christ Church Sunday Schools (£3,000).

WILTSHIRE.

Winsley.—Sanatorium. Mr. W. S. Skinner, architect.

YORKSHIRE.

Barlow.—Works (for 1,000 men), for Messrs. Armstrong, Whitworth Co.

Three hundred workmen's cottages.

Ben Rhysdall.—County (W.R.) Sanatorium for 100 beds.

Bridlington.—Twelve working-class houses (£1,340).

Dewsbury.—Twenty-seven houses, off North Road, Ravenshorpe. Messrs. Holtom & Fox, architects, Corporation Street.

Handsworth.—St. Mary's Mission Church (£1,600).

Hull.—Cattle Market: extension (£6,000).

Leeds.—Hay and Straw warehouse, Kirkstall Road.

Mr. C. F. Wilkinson, architect, 2 Haddon Avenue, Burley.

DURES CO

THE KING OF WATER PAINTS.

The FIRST in the Field. The FOREMOST ever since

THE SILICATE PAINT CO.

Made and sold a Water Paint in 1875.

30 Years Experience has stamped

DURES CO

as being the premier Water Paint.

SOLE MANUFACTURERS—

THE SILICATE PAINT CO.,

J. B. ORR & CO., Ltd.,

CHARLTON, LONDON, S.E.

NOW READY. Price 2/6 net; by post, 2/10.

Merton College

OXFORD

With Historical and Descriptive Essay.

By **BERNARD W. HENDERSON, M.A.**

Containing 14 Illustrations on Art Paper, neatly bound.

MERTON WILL BE THE FIRST OF THE SERIES OF OXFORD COLLEGES.

The following is the List of Illustrations:

- | | | |
|-----------------------------------|---------------------------|-----------------------|
| 1. The Mob Quad | 6. Entrance to Front Quad | 11. The Chapel |
| 2. Gateway in Inner Quad | 7. The Inner Quad | 12. Warden's House |
| 3. Tower from the Grounds | 8. The New Additions | 13. The New Additions |
| 4. The Old Gateway | 9. The Hall | 14. The New Additions |
| 5. Merton College from the Fields | 10. The Library | |

Size of Illustrations, 9½ in. by 6½ in.

The book is produced in the best style possible from photographs specially taken, printed on art paper, size 13 in. by 9 in., price 2/6 net; by post, 2/10. As the first issue is expected to be in demand, early application should be made.

Published by P. A. GILBERT WOOD, 6-11 Imperial Buildings, Ludgate Circus, London, E.C.

WALES.

Barmouth.—London City and Midland Bank premises.
 Corwen.—"Frontryfyd": additions and alterations.
 Mr. A. Foulkes-Jones, architect, Colomendy.
 Denbigh (near).—Sanatorium for consumptives (Welsh National Memorial).
 Dolgelly.—London City and Midland Bank premises.

SCOTLAND.

Edinburgh.—St. Mary's Cathedral: Western towers and spires.
 Board School, St. Leonard's.
 Grangemouth.—Electric Theatre, Charing Cross, for the Empire Theatre Company (accommodation for 900) £6,000.

IRELAND.

Bullymena.—Masonic Hall. Messrs. Patterson & Grahame, architects, 48 Church Street (and at Belfast).
 Banbridge.—Assembly Hall, billiards room, &c., Hill Street. Mr. P. B. Gregory, architect, 124 Donegall Street, Belfast.

PATENT SPECIFICATIONS PUBLISHED
 JULY 24, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

- No. 24,767. May 30, 1912.—E. F. Stimson, 88 Streathbourne Road, Upper Tooting, S.W. Gas cooking stoves.
 14,991. June 27, 1912.—F. W. Turner, 8 Fountain Terrace, West Hartlepool, Durham. Machines for mixing concrete and similar substances.
 15,407. July 2, 1912.—Sidney Clowes, 66 Cedar Road, Aintree. Drawing scales.
 15,477. July 2, 1912.—Josef Kuppis, Komarom, Hungary. Heating stove for domestic and like purposes.
 1,053. Jan. 14, 1913.—G. L. Hibbard, 1115 Union Street, San Diego, California, U.S.A. Moulds for moulding cement walls and like structures in situ.
 1,324. Jan. 16, 1913.—Otto Kreter and G. E. Kreter, 225 Blaine Street, San Antonio, Bexar, Texas. Flushing devices.
 6,445. March 15, 1913.—J. A. Lucardi, St. Veit an der Glan, Austria. Manufacture of artificial stone.
 7,093. March 23, 1913.—Dated under International Convention April 8, 1912. Edward Kersey, 950 Dakin Street, Chicago. Flushing apparatus.
 7,654. April 1, 1913.—Paul Hildebrand, 57 Konneritzstr, Leipzig-Schleussig, Saxony. Device for maintaining a dustbin upon the revolvable trap of the refuse chute.
 8,872. April 15, 1913.—Dated under International Convention April 16, 1912. Alois Leistler, Hollenstein, Ybbs, Lower Austria. Locks for doors, shutters, and the like.
 29,394. Dec. 20, 1912.—Ludwig Nagel, 86 Amhurst Road, Hackney. Fasteners for corrugated iron sheets.
 29,844. Dec. 27, 1912.—W. J. Ayles, Broughton, Stockbridge, Hants. House building and the like with hollow walls and the construction thereof.
 10. Jan. 1, 1913.—Thos. Gaddes, M.D., The Meadows, 133 Durban Road, Watford, Herts. Stays for casement windows and hinged articles.
 518. Jan. 8, 1913.—A. P. H. Brozukat, 97 Tottenham Court Road, W. Drawing pin and extractor.
 25,311. Jan. 1, 1913.—Joseph Hooper, 34 Jeffery Street, Newport. Sash windows.
 26,485. Nov. 18, 1912.—Karl Gasiorowski, 18 Kanzleistr, Zurich. Apparatus for electric sterilisation of closet seats.
 24,469. Oct. 26, 1912.—J. H. Bennett, 253 Putney Bridge Road, Putney, S.W. Blocks for building or other purposes.
 Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Forde Abbey Tapestries.

SIR,—In your issue of last week you give a brief account of Forde Abbey, in connection with a visit to it by the Royal Archaeological Institute, and allude to the five noble tapestries

from Raphael's Cartoons. About these an article might easily be written, touching on such points as where they were woven and how they were acquired originally. But these are controversial, and therefore over-lengthy, matters.

The "official" handbook on sale at the house states that they were a gift from Queen Anne to the Mr. Francis Gwyn who inherited the Abbey through his wife in 1702. Gwyn had held many high public offices under Charles II., James II., William and Mary and Anne before being dismissed by George I. During Anne's reign he acted as secretary at war. These biographical facts are, of course, beyond question. Not so the suggestion in the handbook that Queen Anne's handsome souvenir was supposed to have been taken from a Spanish vessel by some English craft, and so to have become a *droit* of the Admiralty, or that they were wrought for the Spanish King in the looms of Arras, being actually on their way to him when seized by the English. Picturesque stories like this must often be regarded with some suspicions. They are usually as difficult to prove as they are to disprove.

Forde Abbey remained in the Gwyn family for close upon a century and a-half. In 1846 it was purchased by G. F. W. Miles, Esq., of Bristol. The following account of the subsequent sale of the contents is taken from a magazine of that year:—

"A public auction of eight days' duration has just been concluded of the paintings, furniture, &c. The disposal of the plate (some of which belonged to Francis Gwyn, Secretary at War to Queen Anne), occupied almost the whole of the first day. . . . The second day was devoted to the sale of the paintings, eighty-two in number; they were not of any very great value though a few were curious. . . . On the third day five pieces of Arras Tapestry, after the Cartoons of Raphael, presented by Queen Anne to Mr. Secretary Gwyn, and for which his son refused £30,000 offered by Count Orlogg on behalf of the Empress Catherine of Russia, were sold to the new proprietor of the Abbey at £2,200."

On Mr. Mills death the house and contents were again sold. It is a happy accident that these tapestries have remained at Forde Abbey and so form a link to its earlier lay owners.—Yours, &c.,

W. B. C.

Squalid London.

SIR.—One reads with a vast deal of interest the abstract from a paper by Mr. Somers Clarke, published in your issue of July 18. But with Mr. Clarke, as with so many reforming enthusiasts, valour gets the better part of discretion. In the dictionary now before me the definition of squalid is given as "foul, nasty, filthy," and assuredly none of these terms apply to the districts of London mentioned by Mr. Clarke; nor do I consider our metropolis to be "dirty, mean or poverty-stricken in appearance," despite your correspondent's attempts to justify his assertion.

One of the beauties of London consists in the freedom from academic restraint, current in some of the European capitals, of which restraint (municipally imposed) we are seeing the evils in Kingsway.

In what respect is the Albert Memorial false Gothic? Is it that it lacks some of the jerry-construction of mediæval work? I am not, as I will frankly admit, an admirer of the Memorial, where the gigantic gilded statue falsifies the scale of the canopy, and where the grey atmosphere of London exercises a baneful effect on rich colouring. But I should not designate the Memorial as a "sham."

And surely it is beside the mark to animadvert upon roof ventilators and house-blinds, railings and Venetian masts. These do not make or mar the beauties of a city; nor is the Burton arch at Hyde Park Corner the less effective by reason of motor-car notices; architecture must indeed be poor which is adversely affected by such trifles.

The Wellington corner supporters, too, are the better, as I think, for not having swag-connections; but that, at least, may be conceded to be a matter of taste or opinion. It would be an irretrievable error to modernise St. James's Palace, part of whose glamour lies in the series of quaint domestic touches, redolent of vanished days.

Again, Mr. Clarke uses a picture-frame as a simile. Any picture worthy of the name is complete sans frame; it is an English absurdity to revel in gold-leaf and frame-makers' mouldings, with a view to enhancing the merits of the canvas. In France they understand better how to act.

In fine, Sir, I can but express my regret that, when the George III. railings were removed, the very inartistic monument was not also demolished.—Faithfully yours,

PERCY L. MARKS.

Callender's Dampcourses

have gained
First Place in Specifications
by reason of
Standard Quality,
and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

GOLD MEDAL

"BELL"

GRATES



Bell Range
& Foundry
Co.,

16 Berners
Street, W.,
and
Northampton.

Rea Metal Casements

LTD.,

KNOWSLEY WORKS, STANLEY, LIVERPOOL

MANUFACTURERS OF



HALF FULL SIZE.

Telephone,
365 Old Swan.
Telegrams,
"Enlighten, L'pool."

**METAL CASEMENTS
& SASHES of every
description,
LEADED GLAZING &
STAINED GLASS.**



CONTRACTORS TO
H.M. GOVERNMENT.

Ben Henry Johnson & Sons

MODELLERS and PLASTERERS

ARTISTIC FIBROUS PLASTER WORKERS

SPECIALISTS IN FRENCH STUC WORK

Mouldings in Wood, Compo & Enriched Plaster

A FEW RECENT IMPORTANT CONTRACTS:

NEW ADELPHI HOTEL, Liverpool

(First and Second Contracts)

NEW LIVER CHIEF OFFICES - - - Liverpool

WHITELEY'S NEW PREMISES - Westbourne Grove

CARLTON HOTEL (after Fire)

VICKERS HOUSE - - - - Broadway, London

69 VICTORIA STREET, LONDON, S.W.

And Primrose Hill, Fontenoy St., LIVERPOOL.

Wires:

"JONSONIPLA, LONDON."

"HENJONIN, LIVERPOOL"

STUDIOS AND WORKSHOPS:

PARKHILL RD., HAMPSTEAD

'Phones:

5419 VICTORIA.

626 & 627 CENTRAL, LIVERPOOL.
(ADELPHI) ROYAL 4434.

The Architect.

CONTENTS.

	PAGE
Architectural Work in India	121
Notes and Comments	122
"The Architect" Students' Sketching and Measuring Club	123
Operation of Town Planning Act in London	123
Summer School of Town Planning	124
Competition News	124
Illustrations —	
Architectural Work in India	124
The Royal Archaeological Institute	125
Waltham Abbey, Cross, and Epping Forest (illustrated)	128
Alfred East Art Gallery, Kettering	132
Patent Opposition Case	132
Architecture of Railway Stations	133
London Salon, Allied Artists' Association	135
Residential Flats, Avenue Elisee-Reclus, Paris (illustrations)	136-7
Building Progress in the Provinces	139
British Patent Specifications	141

FORTHCOMING EVENTS.

<i>Saturday, August 9.</i>
Architectural Association : Annual Excursion, depart via Southampton and Havre for Rouen.
<i>Monday, August 11.</i>
Architectural Association : Croisset, Canteleu, Duclair, Château de Quatre Vents, Yville, Sahurs.
<i>Tuesday, August 12.</i>
Architectural Association : Longpaon, Ry, Martainville, Boos.
<i>Wednesday, August 13.</i>
Architectural Association : Montigny, Duclair, Taillis, Quevillon.
<i>Thursday, August 14.</i>
Architectural Association : Bosc Guerard, Clères, Cailly, Grand Tendos.
<i>Friday, August 15.</i>
Architectural Association : Dieppe.
<i>Saturday, August 16.</i>
Architectural Association : Rouen.

ARCHITECTURAL WORK IN INDIA.—I.

THE Annual Report on Architectural Work in India for the year 1911-12, by the Consulting Architect to the Government of India (Mr. John Begg, F.R.I.B.A.), affords us an opportunity of seeing at least one side of architecture as practised to-day, the official or Governmental side, for the work described in the report is that carried out for the central Government and the local authorities of the various provinces and presidencies. Another side of the picture is to be seen in "A Report on Modern Indian Architecture," the joint work of Mr. Gordon Sanderson, under the direction of Dr. J. H. Marshall, C.I.E. (president of the India Society, and Director-General of Archaeology in India since 1902), and Mr. John Begg.

This latter report deals with native design and native-built modern Indian architecture, ninety plates from photographs of which it contains. Mr. Begg, in his introductory note says, rightly, that these photographs should amply prove to anyone who might have a doubt on the point the survival to the present day of a living tradition. And he asks: Should we allow it to die the natural death that from one cause or another has overtaken nearly all similar art traditions in other countries, or should we try to give it a new lease of life? He answers that the living tradition is an artistic asset of such incalculable value that we cannot afford to allow it to die out, and points out that the craftsmen are ready to hand for us to make use of them. He also gives it as his experience that the costliest manner for building in India is a Renaissance or Classical one. But as to this we are inclined to think that, judging from the illustrations in the report on Governmental buildings, his comparison is between unstinted Renaissance detail and a starved and emasculated parody of Indian architecture. It does not appear to us possible that Indian architecture, with the plenitude of decoration that it seems to require for a full expression of its traditional character, can be produced in similar material at a less cost than Renaissance models, even after making every allowance for the superior fluency of traditionally trained native craftsmen in their national detail and construction.

Mr. Gordon Sanderson says that there are excellent master craftsmen in plenty, and though it is difficult to ascertain their names and addresses the men can readily be found if they are wanted. He alleges that the European architect is apt to be too hard upon the Indian members of the profession, perhaps largely because he does not realise the fact that native life in native States has not appreciably changed since the Mogul days. There is consequently no marked change in the architecture which is the expression of that life. The build-

ings, he goes on to say, illustrated in the report, reflect this spirit of conservatism. They are suited to their requirements in every respect, and as such, are embodiments of living art with every right to a place in the history of architecture. He continues that the men who have been responsible for them possess faculties not only for construction, but for design also, as well as a working knowledge of allied crafts.

At a recent meeting of the East India Association, Mr. F. O. Oertel, F.R.I.B.A., an architect in Government service, though officially designated as superintending engineer, Allahabad, advocated the claims of the indigenous architecture of India, and refuted the accusation that the Public Works Department was the great opponent of indigenous art and architecture. On the contrary, he said that the want of a renaissance of Indian art was deeply felt, and it had become our clear duty to foster it and guide it into the right channel. Although in the selection of styles for Governmental buildings the official architects were not always free agents, he strongly held that architectural salvation for India lay in the adoption of some form of Oriental architecture which had grown up in the country, and was most suited to its climatic and other conditions.

Referring to the expression of the King-Emperor, in proclaiming his intention of removing his capital to the seat of the Old Mogul Empire at Delhi, that India was to be ruled for India's benefit and according to Indian sentiment, Mr. Oertel expressed the hope that the architects of the Imperial City would recognise that neither Palladian nor Gothic would do for Delhi, which was situated in the heart of India and full of its most sacred traditions.

Such being the expressed opinions of some of the prominent official architects who have been employed in designing and carrying out the most recent Governmental buildings of India, it is interesting to examine the work they have actually produced, and we have devoted our illustrations this week to a reproduction of some of the buildings represented in Mr. Begg's annual report for the year 1911-12.

The new Secretariat in Council House Street, Calcutta, designed by Mr. James Ransome and Mr. John Begg, is for the Commerce and Industry Department, and has during the year been taken over and occupied. The fourth block of the Calcutta Medical College, of which Mr. Begg is the architect, has been completed during the year to which the report relates. The temporary buildings at the Apollo Bunder, Bombay, designed by Mr. Wittet, and put up in connection with the visit of their Imperial Majesties to India, include a pavilion at the landing steps for the reception of their Majesties,

and an amphitheatre to accommodate 3,000 people behind it. All the buildings were treated in white and gold with garlands and baskets of fresh leaves and flowers, and lit with rose-pink electric lamps at night.

The view of the interior of the dining-room at Government House, Poona, shows alterations which were completed some time ago, but photographs have only recently been secured. The room has been panelled in dark teak, wax polished, the pictures being treated as part of the panelling. Some further gilding and decorating remain to be done on the cartouches and mouldings. A new ceiling has been put up in fibrous plaster treated in ivory white, and gold and oval lunettes have been formed in the cove for additional light. This work has been carried out from the designs of Mr. George Wittet, consulting architect to the Government of Bombay.

The Daly College, Indore, has been built of basalt stone in line throughout, except the clock tower portion, which is of flat-bedded limestone from Neemuch. The entire building is faced with grey marble with mouldings and pillars of white Oodeypore marble. The chajjas are of Jeypur marble, the parapets of marble plaster, and the finials of copper gilded. The design is described in Mr. Begg's report as "of the usual Saracenic order," from the hands of Sir Swinton Jacob, K.C.I.E.

At the Muir Central College, Allahabad, a new boarding house, begun in October, 1910, has now been completed at a cost (estimated) of 63,065 rupees. The ground floor contains twenty-two students' rooms, each 12 feet by 9 feet, there being eleven on either side of a central hall or common room 60 feet by 30 feet. The upper storey is similarly divided, but the space over the central hall is occupied by ten cubicles. The total accommodation is for fifty-six students—all the rooms, except two of the cubicles, which accommodate two students each, being each for a single student. Night latrines connected by iron barred passages occur on both storeys at each end of the building. The work throughout is in brick plastered, and the design was prepared by Mr. F. O. Oertel, F.R.I.B.A., to whose expression of views before the East India Association we have above referred. We may presume that the design we illustrate indicates the "some form of Oriental architecture" in the adoption of which Mr. Oertel holds that architectural salvation for India is to be found.

NOTES AND COMMENTS.

THE decision of the Court of Appeal to uphold the judgment of Mr. Justice Horridge in the Lumsden case finally condemns the provisions of the Finance Act of 1909-10 and gives point to the professed intention of the Revenue Bill, which was read for a second time last week, to render such a flagrantly unjust taxation of builders' legitimate profits impossible in future. The weakest point of the Revenue Bill, it seems to us, is that it differentiates between the small owner of property and the large owner. This at once stamps it as a measure for catching or saving votes rather than for the removal of obvious injustice resulting from the wording of the Finance Act. We can well understand that Lord Justice Swinfen Eady dissented from the judgments of his brother judges in the Court of Appeal and looked to the intention of the Act. He said the special case stated said that there was no variation in the full site value between April 1909, when the original valuation was made, and on the occasion of the sale in 1910, on which increment duty was charged. That being so, there was, and could be, no real difference between present and past site value, and the object of the Act was to tax the difference. His Lordship could find no justification in the Act for the contention that whenever the price realised was greater than would have been expected, the whole of the excess was to be deemed to be increment in the site value; and that would be the method of assessment contended for by the Crown.

The suggestion that defective parts in the roof of Westminster Hall should be repaired with teak and not

oak, whilst it may savour of log-rolling, causes us a considerable amount of amusement. Oak, no doubt, will decay under certain circumstances, but we have yet to learn that teak, of the quality that is now imported into this country at any rate, is imperishable. If the whole of the timber in Westminster Hall now required renewal, would anyone venture to say that it has not had a quite respectable lease of life? If it is repaired in oak, can posterity feel aggrieved if the oak does not last more than another 300 or 400 years? But is it not a fact that Westminster Hall roof is made of chesnut and not oak?

This year's meeting of the British Association for the Advancement of Science, which will be held at Birmingham from September 10 to 17, will include some papers that should be of interest to our readers. Archaeology, both British and Foreign, will be well represented, and in the engineering section Mr. A. T. Walmisley is to present a paper on "Metals for Structures."

It seems that there is imminent danger that the typically Irish squabbles of the Dublin Corporation will result in the abandonment of the scheme for carrying out Mr. Lutyens' design for a museum on the river site and the loss to the city of Dublin of the "Lane collection" offered to the Corporation, worth at least £65,000. It includes six works by Rodin, two by Dalou, eleven Corots, three Courbets, and fine pictures by Daumier, Rousseau, Daubigny, Alfred Stevens (the Belgian master), Maris, Mauve, Mancini, Fantin-Latour, Monticelli, Harpignies, Boudin, Puvis de Chavannes, Manet, Renoir, Monet, and Pissarro. Some of these were sent to Dublin, where, however, the space available in Harcourt Street is quite insufficient to do them justice; others remained in London, waiting till a proper gallery was ready to receive them.

Approximate estimates are seldom satisfactory and do not appear to be any better in Government offices than elsewhere, as was shown when a Standing Committee met to consider the Public Buildings Expenses Bill, introduced on behalf of the First Commissioner of Works by Mr. Wedgwood Benn. The Bill appropriates the surplus of £145,000 from the sum of £600,000 which was allocated under the Finance Act of 1908 to the building of the new Local Government Board offices in Parliament Street and Great George Street in the following manner: Home Office Industrial Museum, £25,000; Admiralty (additional accommodation), £55,000; and the College of Art, South Kensington, £65,000.

Mr. Gordon Harvey, a Ministerialist, said that the monstrous inaccuracy of the estimates framed by the Office of Works Department, of which this Bill gave an illustration, was severely criticised by the Estimates Committee last year. The most extraordinary discrepancy disclosed here was due to the practice of laying vague proposals before the House without any adequate attempt being made to arrive at the actual cost of the work proposed to be undertaken. He protested against this practice, and, unless they could have an assurance from the representative of the Government that a serious attempt had been made to see that the estimates in the Bill were really accurate and proper estimates, he should feel it his duty to oppose the Bill.

The Palace of Peace at The Hague, erected for the use of the arbitration court of the world, is to be opened in State by Queen Wilhelmina on August 28, but the prospects of universal peace by means of arbitration do not seem to be particularly bright. We would that they were, for such conditions would be for the benefit of architecture. Very few architects of this or any other country would, we imagine, be very keen on entering the international competition now open for the new Royal Palace and new Law Courts at Sofia in the present conditions of peace in the Balkans.

Cambridge University has recognised the desirability of University training for architects by the establishment of its School of Architecture, in which as part of a normal undergraduate course leading to a B.A. degree an embryo architect may be instructed in mathematics, mechanics, construction, design, history and theory of art. In June 1914 there will come into force an examination in architectural studies open to students of the University for completing their degree. "A candidate who has obtained honours in a part of any tripos examination or in one section of the mediæval and modern languages tripos shall be deemed to be qualified for a degree of Bachelor of Arts if he has passed the examination in architectural studies and has kept the number of terms required for a degree" (*Ordinances*, 1911, p. 516, and *Reporter*, 1912-13, p. 1085). Students can, therefore, take up the subject in their second or third year, after having passed one part of any tripos, and give one or two years to the study of architecture, either with the view to the professional exercise of that art, or otherwise, and on passing the examination in architectural studies they will obtain the B.A. degree. In this manner the studies of the University in mathematics, classics, history, natural and mechanical sciences, theology, modern languages and other tripos subjects can be combined with training in architecture, to the advantage both of professional and general culture. The Council of the Royal Institute of British Architects will accept the examination as exempting from certain subjects of their intermediate examination, so that while enjoying the advantages of a University education, the architectural student is making progress in his professional career.

In the August number of the *Connoisseur* is the second of a series of articles on old Chinese lacquer, interestingly dealing with drawings in line. A character sketch of King Charles I. as a connoisseur is contributed by Mr. D. C. Calthrop. Old lead-glazed pottery, Waterford wine-glasses, Worcester vases are amongst the bric-à-brac dealt with in this number.

The latest edition of the Handbook of Structural Steelwork, issued by Messrs. Redpath, Brown & Co., Ltd., has been prepared by their Technical Department as an up-to-date guide for the accurate and rapid design of steel construction. By the use of carefully compiled tables of data relating to the properties of standard sections both in simple forms as rolled and in combinations, the strength of these under normal conditions and their essential qualities in abnormal conditions is at once obtained without calculations, and suitable sections may be selected for each particular instance. The principal tables are arranged in three groups, for girders, stanchions, and roofs respectively in Parts I., II., and III. of the handbook. A valuable section of the book is that included as Part IV., which under the title of "General" includes all matter applicable to variations of the tabular conditions, in addition to useful data, general formulæ, and mathematical tables purposely omitted from the other parts of the book. The information given in this Part IV. starts from such elementary facts and principles that it might very well serve as a text-book for the embryo engineer or architect in his earliest study of steel construction, whilst it extends to almost any conditions of construction that would be likely to occur in everyday practice. It thus is of equal value to the novice and to the expert. The mathematical tables include simple trigonometrical expressions, equivalents and functions, logarithms, natural sines and other functions of angles, squares, square roots and cubes of members, circumferences and areas of circles, metric measurements and their British equivalents. The details of steel construction form the subject of Part V. of the handbook, and here are given illustrations and particulars of standard and typical connections of steel construction, such as splices, ends, caps, and bases. The regulations affecting the construction of steel-

framed buildings in the metropolis, as provided by the amendment of the London Building Acts included in the London County Council (General Powers) Act, 1909, are separately dealt with in Part VI. of the handbook, which gives a transcript of the text of the amending Act, and tables of various sections and various forms of stanchions fitted to meet the requirements of London building law.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

We are pleased to find a considerable improvement in the quality of the water-colour drawings that have been submitted for this month. Our contributors have evidently begun to realise that in such both "water" and "colour" are essential components, and that the conventional flat wash which is usual in the tinting of working drawings is quite out of place and completely wrong in a water-colour sketch or drawing.

Mr. Gordon Hemm has drawn the south porch of St. George's Church, Stockport. The main subject is fairly well rendered in a well-chosen colour, but would be better with more variety and a fuller treatment of shadow and local tones. Mr. Hemm needs to practice the technique of laying a broken wash. In trees and other accessories, as well as in the rendering of foreground, our contributor is not yet successful, and needs more practice.

"McKim" sends a sketch of Mytton Church, near Whalley, Lancashire, which is a very pleasant example of water-colour handling by one who has learnt how to lay a broken wash and to use bright, sparkling colour.

"Dunelmian" is making progress, but has still a good way to go before he reaches success. He must practise drawing as well as brush-work, and persevere.

"Plato" sends a pleasing drawing of the south porch of St. Mary's Church, Oxford, which is good as a presentation of architecture and a study in colour. The rendering of the foliage is, however, not quite satisfactory.

"Improver," in his drawing of the central tower of Durham Cathedral, shows an advance beyond his earlier work, but his colour on the walls of the main building is still too flat, though the tower itself is more satisfactory. Trees are not yet within the compass of our contributor's ability.

"Ebor" handles his washes fairly well in his sketch of the old almshouses school at Corsham, but from a purely water-colour point of view spoils his work by the use of brown ink for outline. There are no outlines in nature, and directly we begin to draw in outline we make a diagram not a picture. "Ebor's" sketch is bright and his colour scheme good, but his foliage wants more practice.

"If" has adopted a somewhat peculiar but pleasing and suitable tone of colour in his drawing, a Norman tower at Christchurch Priory, Hants. His brush work is becoming satisfactory, but the foreground needs more work.

Mr. Henry Lawrence has obtained a fine feeling of texture in his drawing of a doorway from Tamworth Castle, but his treatment of foliage is not quite successful.

We award prizes of one guinea each to "McKim" and "Plato."

OPERATION OF THE TOWN PLANNING ACT IN LONDON.

At the last meeting before the summer recess, the London County Council, on the recommendation of its Building Acts Committee, refused to consent to the inclusion of land, which was within the Administrative County of London, in a town planning scheme in course of preparation by the Barnes Urban District Council. The committee stated that the utilisation of the land in question was not essential to the success of the proposed scheme.

Mr. P. A. Harris, in moving the reference back of the committee's recommendations, drew attention to the fact that when some time ago it was suggested that the working of the

Act should be transferred to a more energetic and reliable committee, the Council was informed that before long the Building Acts Committee would exhibit some sign of activity. Yet, instead of London giving the lead, she was apparently to sit still and allow small urban district councils to take the initiative. There was probably no instance in the work of the Council where a committee had so shirked its responsibilities as had been the case in connection with the operation of the Town Planning Act. He asked that a comprehensive report be brought forward, and an assurance given to the Council that the committee was performing its duty in the proper regulation and development of land unbuilt upon in and around London.

Sir John Benn, seconding the reference back, said it was a most melancholy and ghastly thing to take a trip round the fringe of London, and see what was being done with the land. Beautiful areas were being utilised for the creation of fresh slums, and there was apparently nobody to rescue London from such disaster.

Mr. Andrew T. Taylor (Chairman of the Building Acts Committee) characterised Mr. Harris's speech as extremely rude and exceeding the legitimate bounds of debate. A great deal of work was being done by the committee, which could not be presented directly to the Council as a town planning scheme. The committee always inspected plans of schemes proposed by neighbouring authorities, with a view to preventing interference with main traffic routes. It was one thing to lay out a scheme outside London, where the land was of comparatively little value, but quite another matter in the Metropolis, where land was extremely expensive. The committee would act as soon as they obtained the necessary information, and at that moment had a very large scheme in hand. They were negotiating informally, but for obvious reasons the Council could not expect to be then informed of the precise location of the area. Before long, however, he hoped to submit a large and important scheme to the Council.

The reference back was defeated, and the committee's recommendations adopted.

SUMMER SCHOOL OF TOWN PLANNING.

AMONG the lecturers who are to speak at the Summer School of Town Planning, which is being held under the auspices of the University of London at the Hampstead Garden Suburb from August 4 to 16, are Mr. E. L. Lutyens, who is lecturing on the new Delhi; Professor Adshead, of the Liverpool University, the first Professor of Town Planning in this country; Mr. Raymond Unwin, F.R.I.B.A., architect of the Hampstead Garden Suburb; and other well-known authorities on this branch of professional work.

The great success which attended the Summer School of Town Planning held at the Hampstead Garden Suburb last August induced the committee to organise a second Summer School on the subject for this year. The committee have been fortunate in securing the Earl of Lytton to act as President of the school. The Earl of Lytton has taken special interest in this subject, and has had a large area of his estate at Knebworth town-planned. This is now being developed on garden suburb lines by Mr. G. L. Pepler, one of the lecturers at the Summer School.

The question of town planning is developing so rapidly in this country that much new experience will be available this year in the progress that has been made. Two schemes have already received the approval of the Local Government Board for different parts of Birmingham, and full particulars of these will be available for consideration and discussion. The very interesting and complete scheme which has been prepared for the Urban District Council of Northwood is now approaching completion, and only awaits the approval of the Local Government Board, so that the particulars of this valuable scheme will also be available; and Mr. Abbott, who has shown such a grasp of the legal side of the question, will be able to put before the students the difficulties and the experience that has been gained in developing this scheme in a way that was not possible last year, when the proposals were in their early stages, and were necessarily confidential to a large degree.

It is now beginning to be realised that the Town Planning Act will very greatly affect the lives of people, perhaps more than any other Act of modern times, and no one who is concerned, either as a citizen or as an official, with public affairs can afford to neglect this Act. It will affect the cost of people's houses, the size of their gardens, the number and size of their playing fields and parks, and, therefore, the length of their lives and the health and happiness of their

children. It will also affect the prosperity of the industries on which their livelihood depends, the distance they must travel to their work and their children to school, and many other aspects of their lives.

The Summer School will be held, as it was last year, under the auspices of the London University. Several representatives appointed by the Board to promote the extension of University teaching are members of the committee, and they assist in drawing up the course to be followed. At first sight it may appear that a fortnight is a very short period within which to study a subject like town planning, but much can be done by concentration, and twenty-four carefully arranged lectures given consecutively and co-ordinated to bring all the different sides into view really represent an amount of teaching which would not be exceeded in many University courses for a single subject spread over a year. Also, the fact must not be overlooked that these lectures will be listened to by a body of students, most of them already experienced in some branch of the subject, who will increase manifold the value of the lectures by discussing them among themselves from different points of view, and bringing into the common stock much valuable personal experience.

The syllabus of the course can be had on application to the Secretary, Mr. J. S. Rathbone, the Institute, Hampstead Garden Suburb, London, N.W.

COMPETITION NEWS.

MANCHESTER.—The Parliamentary Bill to authorise the extension of the Manchester Royal Exchange over Bank Street has received the Royal Assent, and the directors have given "Notices to Treat" to all owners and lessees of land to be absorbed. They hope to be in possession of all the property, and have it cleared ready for building, in twelve months' time. Competitive plans have been invited from all architects in practice in the United Kingdom, and at the directors' request the President of the Royal Institute of British Architects has appointed Mr. J. G. S. Gibson to act as assessor. The building will probably take about eighteen months to complete.

NOTTINGHAM.—It is proposed to erect new club premises for Radford in connection with the Nottingham High School Old Boys' Society, and a competition is to be promoted for the purpose of selecting the most suitable design. It is estimated that about £5,000 will be required for the building.

UNITED STATES.—The *Scientific American* invites essays of not more than 2,500 words each explaining what are the ten greatest inventions of the last twenty-five years. Prizes of £30, £20, and £10 will be given. The essays must be sent in by September 1 to 361 Broadway, New York.

ILLUSTRATIONS.

ARCHITECTURAL WORK IN INDIA.

THE illustrations of the Commerce and Industry Secretariat, Calcutta, the fourth block of the Calcutta Medical College, the temporary buildings at the Apollo Bunder in connection with the visit of their Imperial Majesties to India, the alterations to dining-room at Government House, Poona, the Daly College, Indore, and the new boarding-house at the Muir Central College, Allahabad, are reproduced from Mr. Begg's Annual Report on Architectural Work in India for the year 1911-12. Further illustrations will appear in our next issue.

THE *Lieferungs-Anzeiger* (Vienna) of July 24 announces that the municipal authorities of Budapest have approved the proposals submitted by the Mayor for the enlargement of the St. Gellert and St. Laszlo hospitals. The cost of the extensions is estimated at £189,400.

MR. WEDGWOOD BENN, in Tuesday's Parliamentary papers, informed Mr. Fletcher that the First Commissioner of Works could not yet say how long the scaffolding in Westminster Hall was likely to remain, but the examination of the roof would be completed about October. He adds that the hall is under the constant observation of the day and night police, and is adequately provided with fire appliances.

THE authorities of Banchory, Aboyne, and Ballater are considering a scheme for lighting by electricity their respective burghs. The current would be supplied by the Corporation of Aberdeen, and, if the terms proposed by that body were adopted, sub-stations would be formed at each of the three places in question.

ROYAL ARCHÆOLOGICAL INSTITUTE.—III.

Friday, July 25.

THE distance covered on the fourth day of the Summer Meeting was considerable, although the places visited were only three. These lay to the south-west of Exeter, and ended with a wonderful afternoon on that corner of Dartmoor where, perhaps, the best-known example of its pre-historic habitations is to be found. The day was favoured with the grand weather of its three predecessors. The only possible fault which even the most captious could discover was in the dust. This lay thick on highway and hedge, and carpeted the narrow, deeply-cut lanes—one of the glories of Devon—which are more reminiscent of packhorses than of motor traffic. The big charabancs had sometimes to almost push their way through the leafy side walls. After an hour's delightful journey through the well-wooded and fertile country the first halt was made at

DUNCHIDEOCK CHURCH.

This is a small structure, mostly of the fifteenth century, consisting of continuous chancel and nave, western tower, and south porch. One very strong influence which resulted in the elaborate local screenwork of this period is well exemplified in this village church. The red sandstone of the neighbourhood was a hopeless material from the stone carver's point of view; its hardness thwarted anything but the most elementary design. As a consequence the growing love of elaboration had to discover another outlet. The craftsman found it, to the permanent gain of the country, in the wood fittings. At Dunchideock the pillars are great monolithic affairs with rude mouldings more suggestive of the early twelfth than the late fifteenth century. The glory of the church is the fine rood screen, with side screens to the chancel. A great curiosity of it is the way in which it is continued with solid panelling round the column dividing the middle portion from the side. It is difficult to understand how anyone was able to get to the rood loft. In the screen fan vaulting and cresting there is a clever amalgamation of new with original work. Several of the bench-ends are of the same date as the screen. In the aisle there is a monument to Major-General Stringer Lawrence, who commanded in India from 1747 to 1767.

ASHTON CHURCH.

This was described by Mr. Harold Brakspear, F.S.A., in his remarks preliminary to an examination of the building by the members themselves as quite one of the nicest churches on the programme. Such a claim was somewhat audacious, for the list included Tiverton, Kenton, Crediton, and Ottery St. Mary. Ashton is of precisely similar plan and date as Dunchideock. At the former, more of the old work is remaining, even to its waggon roof. Like most of the churches in this county, it was rebuilt during the fifteenth century. At Ashton they employed a freestone for the arcades, though the greater part of the fabric is of pure Dartmoor granite. Here, too, the most conspicuous feature of the interior is the wooden screen work. It is richer than that at Dunchideock, inasmuch as it has a series of painted saints in the lower panels. This, however, is not at all remarkable in Devonshire. What does at once differentiate it from nearly all the others are the panels of the screen between the chancel and north or Lady chapel. The side screen has an interesting series of prophets with scrolls painted on them in three colours. These are half-length figures. It has been suggested that they are really portraits of the Chudleigh family, whose arms figure largely in the glass, font, and bench-ends. Dom Bede Camm reckons that they are perhaps the most remarkable paintings still existing in Devon. The upper part of the rood screen has been restored. This almost invariable experience is easily accounted for. In the second year of Elizabeth's reign the Royal Commissioners "decreed and ordained that the rood lofts as yet being untransposed shall be so altered that the upper parts of the same with the sollar be quite taken down unto the upper parts of the vaults and beams running in length over the said vaults, by putting some convenient rest upon the said beams towards the church, leaving the situation of the seats as well in the choir as in the church as heretofore hath been used." Zealous churchwardens were doubtless determined to take no risks of any suspicions as to their loyal obedience, and the workmen employed for the demolition were not over-careful. Consequently a good deal of the screen vaulting was hacked away too, in most of the country churches. The bench ends at

Dunchideock are considered unusually fine, as is also the wooden monument to George Chudleigh, of 1657.

Mr. F. Morris Drake, of Exeter, drew attention to the considerable number of pieces of original painted glass still remaining in the Lady chapel windows, and bearing the arms and alliances of the Chudleighs. The work he considered to be especially good, especially the lions, of which there are about twenty-five. As illustrating the elaborate care with which it was painted, Mr. Drake said the artist had taken the trouble to rub off the ruby colour between the paws and between the tail and body of each lion. He thought they might be French.

In the Lady chapel there is on the north wall a fine wall painting of "Our Lord's Pity," depicting the Saviour in the tomb showing His wounds, and surrounded by the emblems of the Passion.

After stopping for lunch at Moreton Hampstead the party reached the high land of Dartmoor, and there joined the Devonshire Association and other local societies at

GRIMSPOUND.

Sir Henry Howorth, the President of the Royal Archæological Institute, having happily expressed compliments to the county, said his Society were out on a holiday. There were certain parts of their great subject which they must learn from Devonshire people who lived on the ground. It was one of their purposes to have as many children as possible, and in their visits to all parts of the country they desired always to foster such interest among people as would induce them to form societies of their own and to work up local antiquities. The only way that could be done was by long acquaintance with the details on the ground. It was a constant pleasure for the Institute to look at their lusty children. It was forty years since the Royal Archæological Institute was last in Devonshire. If they compared the difference between archæological investigation then and now they would be surprised at the improvement. There was nothing more wicked in the world than the destruction of antiquities by antiquarians. A great many churches had been desolated by simply shocking methods of "restoration." Those responsible had in their restoration work aimed at producing uniformity of style, whereas most of the members of the societies present looked not for uniformity but for some monument and relics of every single half-century retained in the building. In the case of pre-historic monuments, they had been dug into in the most stupid way—often in the hope of treasure, of which they had really none to offer. The late General Pitt-Rivers had shown how the work ought to be done. They desired to know what was in each cubic yard of ground, and before a spade was put into it every single inch should be mapped. Perhaps the most extraordinary site in the two islands was the Hill of Tara, where the heroic Irish kings were successively crowned, and from which came our Coronation stone. Its site was recently divided into two and offered for sale. One portion was purchased by a crazy fellow in the South of England, who, believing the Ark of the Covenant was buried there, ruthlessly turned over every inch of the ground, and for ever destroyed the contour of the hill. They ought to put an absolute embargo upon the digging of any plot unless the man in charge was a scientist who knew how to dig scientifically and unless the whole work was under constant supervision.

Mr. Robert Burnard, F.S.A., described the settlement to the large gathering. It was, he said, twenty years ago since Mr. Baring-Gould and himself started on the exploration of the hut circles and sepulchral remains of Dartmoor with a determination to set at rest the many conflicting theories. A year after the commencement of their work—i.e. in 1894—they came to Grimspound. Their investigations showed that these hut circles were generally associated with pounds or enclosures of some kind or other, indicating that the people who lived in the circles were of a pastoral character. None of the circles investigated yielded a large number of finds; but, taking them as a whole, they yielded a fair number of implements made of flint and stone, rubbing stones, hand-made pots, cooking vessels, and so on. Not a particle of metal of any kind was found anywhere. Between three and four hundred circles were explored. On Dartmoor there were in all probably two thousand circles. There was no doubt that this people lived in a state of culture represented by the Late Stone and Early Bronze Ages. Very few of the circles disclosed evidence of a prolonged occupancy, the inference being that the people came here mainly as summer visitors, and did not live there permanently through the winter. They were pastoral low-

landers, who annually came to the moor in summer for the grazing of their cattle. It would have been impossible for them to maintain during the winter any more than a comparatively few cattle or sheep. If there was a permanent population at all it must have been very meagre, being strictly limited to the small amount of forage which could be stored for winter use. As recently as the beginning of the nineteenth century the population of Dartmoor amounted only to 200 persons.

It was a curious thing that these peoples had never been tin-streamers. There was indeed no reliable evidence of tin-smelting until about the tenth century of the present era. It was remarkable that the Romans should have so neglected Dartmoor and its tin, though they had a station at Exeter. The same fact applied to Cornwall, where, in spite of the old belief, the evidence of the Roman use of the tin was exceedingly flimsy. This was extraordinary, because the Romans penetrated into the heart of Wales and explored other out-of-the-way places in their search for lead and gold.

Many groups of hut circles had associated with them, as he had already mentioned, pounds or enclosures for cattle. But there was not another on Dartmoor like that at Grimspound, for it had never been pillaged of its stones. Every stone that the original builders put into the outer wall, and every stone put into the circles was there still. Other Dartmoor pounds showed evidence of great spoliation. The most obvious reason why a primitive people should put up at that place was that an outcrop of granite was close at hand, and also that the Grimslake stream ran through the pound. When Mr. Baring-Gould and himself came there first, the walls appeared to be a mass of inexplicable confusion. Supposing the stones to be the ruins of one wall, if placed one on the other they would make a wall 10 feet thick and 4 feet high. Such a one would serve no useful purpose. Investigation showed it should be not one wall but two, with an empty space between them averaging from 3 feet to 3½ feet, and from 5 feet to 6 feet high. This would be ample for sheep but not sufficiently powerful to keep out human assailants or an active enemy like a wolf. This probably extended in double-walling all round the pound except at its main entrance. Personally, he had come to the conclusion that whatever the place might have been intended to be it was never completed. What useful purpose could such a narrow space as the 3 feet between the walls serve? It might be said that it could be filled with an earthen core carrying a wooden palisade. But there was not the least trace of such a core; and if it had existed it could not have been entirely washed away. The area within this enclosing wall was about four acres, and in it were twenty-four circular enclosures. Twelve of these had been identified as huts at one time lived in by human beings. They had thick walls of stones set vertically, smaller stones being used as an infilling. He presumed that the almost circular stone walls were covered by roofs of rushes or heather in wigwam fashion. The covering here could certainly not have been stone. The huts were undoubtedly only occupied in summer-time. In them was usually found the hearthstone or firehole. The entrance to each hut, usually placed south-west, had been protected by a curved wall, which was often found *in situ*. The other twelve huts were apparently nothing more than pounds for animals. The original entrance to the outer double enclosure, which is paved and 7 feet wide, was on the south.

At the evening meeting Mr. F. Morris Drake read a Paper, with lantern illustrations, on

THE GLASS IN EXETER CATHEDRAL CHURCH.

Devonshire was, he said, particularly unfortunate in the matter of the preservation of its ancient stained glass. Very, very few complete or nearly complete pre-Reformation windows remain. In Exeter and the adjoining district there were only nine; four in the cathedral and five in Doddiscombsleigh Church.

That this paucity was due to destruction and not to any original lack of glass was readily proved by "The Diary of Richard Symonds." Symonds was a Royalist captain of horse during the Civil War. A keen herald, he made a point of noting in his diary many of the monuments and a great number of coats-of-arms in the churches or manor houses which he visited. In July 1644, when passing through Exeter on his way to Cornwall, he went to the cathedral and jotted down seven or eight coats-of-arms; and on his return from the victorious campaign against the Parliamentary forces under the Earl of Essex, he seems to have made a more or less methodical list of the shields

in every window. The list was not quite complete, but he noted no less than 140 coats-of-arms. Of these 140 less than 20 now remain.

Evidences of like destruction exist throughout the county. There is only one thing rarer than a church without some remnants of mediæval glass, and that is the church which can boast a complete window. Some small scraps—a shield or two, a mutilated figure, perhaps a few tracery eyelets—can be seen in most, and yet with the two exceptions mentioned there is not a window in a state even approaching completeness. This is the more to be regretted because the fragments that do remain are almost invariably good work. It is often almost masterly in conception and design, and in technique and workmanship it is nearly always exceptionally good.

In the cathedral, according to Mr. Drake, one window after another has been deliberately destroyed. In most other buildings when a window fell into decay it was either re-leaded, rudely patched, or removed and replaced by plain glazing. But in Exeter one of the cathedral glaziers, probably in the seventeenth century, devised an economical plan of using up broken scraps of ancient glass. Setting out a rude quatrefoil pattern he cut up the fourteenth-century scraps to form coloured lines and borders, filling in his background with common sheet glass. So enamoured were he and his successors of the process that they cut up perfectly sound windows to provide the coloured passages for this kind of trashy glazing. During the last two centuries this work of destruction has gone on without a stop.

The earliest in date of the four remaining is the central window of the north clerestory, facing the Bishop's throne. It is a typical middle Geometrical window strongly suggestive of North-French influence. Its general arrangements may be found over and over again at Rouen. Many of the details of the Exeter glass showed, in Mr. Drake's opinion, a startling resemblance to similar work at Rouen Cathedral, and there was actually a tradition that one Master Walter, glazier to the Dean and Chapter at this period of the beginning of the fourteenth century, was himself a Rouen man. The six side-lights of the interesting great east window may be by the same hand as the clerestory window just described. In 1389 it was decided to enlarge this window over the high altar, Robert Iyen, of Exeter, being sworn in by the Chapter as their glazier at the yearly salary of £1 6s. 8d. The six lights of the original window were too short for the newly made openings, and bases were added in the Perpendicular style then in vogue, their borders, however, being made to match and run with the older glazing above them. This in itself seemed rather a concession for a Gothic artist to make; but it was nothing when compared with the canopies of the three new centre lights. These are almost deliberate copies of the Geometrical canopies beside them. To find any Gothic glass-painter so copying the work of an earlier period than his own seemed to Mr. Drake to be unique. The figures beneath the canopies are typically Perpendicular, and show the great strides made in the seventy years between the painting of the six-light window in 1320 and its enlargement in 1389.

The only other windows remaining in anything approaching a complete condition are the two grisailles in St. Mary Magdalen's and St. Gabriel's chapels. Originally occupying the six-light openings to the north and south of these chapels, each has been cut down and crammed into the five-light east window adjoining it. These windows are remarkable not only for the delicacy of their design and the adroitness of their execution, but also for the hardness and whiteness of their material. In 1317 the Chapter purchased a large quantity of both white and coloured glass at Rouen, the white glass containing more than the coloured. This inversion of the usual order of things would seem to indicate, said Mr. Drake, some special quality in the white glass, and the white glass of these windows is exceptional. It is nearly pure white, instead of being green or grey or horn-coloured, as is most of the so-called white glass of the period. It is also most durable, and shows scarcely any traces of decay.

Besides these four windows and the scraps leaded up in the modern quatrefoils throughout the building, there is an interesting jumble of odds and ends in the east window of the chapter-house. For the most part heraldic work of various dates from the fourteenth to the eighteenth century, it comprises all that has been saved from the destruction of the last three centuries.

Mr. Drake concluded an interesting lecture by describing and illustrating the five Perpendicular windows which fill the north aisle of Doddiscombsleigh.

Saturday, July 26.

CREDITON CHURCH.

The church was originally that of a college established in early times, apparently upon the removal of the bishop's seat to Exeter in 1050. But of that building nothing remains. The present structure consists of a chancel with aisles, an eastern Lady chapel, transepts with central tower, a nave with aisles, a south porch, and a three-storeyed vestry on the south side of the chancel. The crossing and the north and part of the south transept are of the middle of the twelfth century; the Lady chapel of the thirteenth. The church was generally remodelled in the fourteenth century, and tracery was inserted in the windows in the fifteenth. The chancel was again rebuilt in the latter century, and has large windows in the aisles and clerestory. The nave is of the same character, and the porch is vaulted. The vestry served formerly as the chapter-house. There are interesting monuments of the seventeenth century on the north side of the sanctuary. Fragments of the sedilia remain, and the panelling towards the south chancel aisle, with a recess in the midst, is believed to have been the Easter sepulchre removed from the north side of the altar. A precentor acted as head of the college. There was also a treasurer and a parish vicar in addition to the other canons.

Sir Henry Howorth, the President, gave a brief survey of early ecclesiastical history prior to the foundation of Crediton as a bishopric. The Saxon bishops of England came to an end, he said, in 624, when the last Archbishop of Canterbury of St. Augustine's foundation died of the plague. Egbert, the King of Kent, wrote to the Pope asking for a suitable man to fill the see. After some difficulty and anxious consideration he selected a very famous man, indeed perhaps by far the most remarkable man to ever hold the see of Canterbury. This Theodore, a Greek by origin, as a monk followed the rule of St. Basil, which was chiefly based on the practices of the eastern hermits. Whatever, therefore, he brought with him in the shape of theology and worldly wisdom was brought from the East. He was already an old man when he came to England. Two great things Theodore made up his mind to do. The first was to unify the Church in this country, which was at that early time divided into two sections: one party holding to the Irish missionaries with their particular observances as to the shape of the tonsure and the date for the celebration of the Easter festival, and the other party which followed the Roman practice in both particulars. These differences led to a good deal of confusion. Theodore determined to create a uniformity of observance. He eventually persuaded the Kings of Northumbria, Mercia, and the central parts of England to adopt the Roman practice. Theodore's second determination was more difficult of attainment. England was then very different from Italy, Spain, and Gaul, inasmuch as it had several separate kingdoms, each of which was jealous of the others, and maintained its own autonomous bishop. The intercourse between one bishop and another or with Rome was very small. What Theodore had to do was to get over the deep-seated prejudice of these kings against any increase in the episcopate. For he saw that it was impossible for a single bishop to work such tremendous dioceses as the Kingdom of Northumbria. The Archbishop made a great fight, and after a struggle succeeded. His great opponent was St. Wilfrith of York, a man of forceful character and difficult to work with. Wilfrith considered he should at least be Archbishop of York, and he opposed in every possible way the suggestion of Theodore that his diocese should be split up. Eventually Wilfrith went over to Italy, and while he was away Theodore divided it into the smaller ones of Hexham, Lindisfarne, York, and one in Scotland. This latter, by the way, marked the first introduction of the so-called English Church with a proper organisation into Scotland. Theodore did the same thing for the Kingdom of Mercia. The Archbishop next waited until the death of the Bishop of Winchester before he divided that diocese into two—namely, one at Sherborne and one at Winchester. In the new diocese at Sherborne there was Crediton—probably a British village. Among the inhabitants was Winnifrith, or St. Boniface. His was the great name which sanctified the place. Winnifrith was born at Crediton in 680, and was sent to Exeter to school. Through his influence a grant of land was made by the King of Wessex to found a monastery here in 739. Devon and Cornwall were at that

time two British kingdoms, with two British bishops. Devon came under the influence of the English Church. In 909 Crediton, passing out of the hands of the British ecclesiastics, was made into a see under the English Church. Possibly it was chosen by reason of the wonderful reputation of the martyred Winnifrith, or St. Boniface, who journeyed to the Continent for missionary work and finally planted himself at Mayence, where he laid the foundations of the magnificent Church of Germany. At Mayence his remains still exist, except the single bone at Brixworth. The bishopric of Bodmin was the beginning of the English Church in Cornwall. Crediton was the bishop's see until it was thought better at the Council of London in 1050 that bishoprics should be brought into the larger towns.

Mr. Brakspear then described briefly the architectural history of the church, and pointed out its unusual features.

Rev. Smith-Dorrien, the Vicar, contributed some interesting facts about the church. Crediton had, he said, always enjoyed peculiar privileges. The church met with somewhat ruthless treatment from Henry VIII., who did a most extraordinary thing in selling it to the parishioners. The charter stated that the sum paid to the king was £200; but it had recently been discovered at the Record Office that the parishioners really gave £300. The missing £100 must be put down as another item in Henry VIII.'s record as a plunderer. Soon after Edward VI. came to the throne the church affairs were put into the hands of a corporation of twelve governors, and this body was still supreme. It enjoyed certain singular powers. For instance, it was only through the courtesy of the governors that a new vicar could be inducted by the bishop.

Crediton Church occupies an important site flanking the roadway, from which an excellent view of it may be obtained. The latter was not always the case. Until recently the building was partly obscured by an inn and cottages. A proposal was made to remove them in the Coronation year of Queen Victoria, and again in 1902 as a memorial of the Coronation of King Edward VII. It was finally accomplished as a memorial of the Coronation of King George V.

Mention must be made of a wonderful muniment chest dating from about 1420, which stands at the end of the north chancel aisle.

The cars then returned to Exeter for lunch, and next set out for

KENN CHURCH.

This church of two aisles and a nave is arranged on the usual Devonshire plan of the fifteenth century—a period when there was an extraordinary local outburst of building, nearly all the churches in the county being then either rebuilt or very extensively remodelled. Kenn, like Dunchideock Church, has plain monolithic columns of hard Dartmoor glomerate. Mr. Brakspear pointed out the slope of the floor, which had not suffered the usual fate of being levelled. Here, too, there are a number of original benches. The screen has been in part restored in its upper part, but has a fine series of painted saints in the lower panels, which is considered to be one of the most interesting in the neighbourhood. In the nine classes into which Mr. Bligh Bond divides the 200 Devonshire screens, Kenn appears third by virtue of its marked superiority of detail without departure from type. Dom Bede Camm, in discussing a theory that the local schools of carving which must have existed in the fifteenth century were under the superintendence of certain monasteries such as Buckfast and Tavistock, has come to the conclusion that the paintings at any rate show distinct traces of Cistercian influence. The quality of the carving he rightly considers as being as a rule far superior to that of the painted panels, and that there was nothing in Devonshire to in the least compare with the splendid paintings of East Anglian screens. The figures are sometimes of a somewhat humorous nature. A favourite saint, for example (which appeared on four of the screens met with on the various visits) was St. Appolonia—the patron saint against toothache. Indeed, with the exception of the Apostles, she was the most widely venerated of any saint; she usually holds a large pair of pincers which retain in their grip a formidable molar.

In this church appreciative comment was made on the fact that the screen is surmounted by a wooden, though modern, rood, with the attendant figures of Mary and John. Mr. St. John Hope maintained these ought to be in every church now that even diocesan chancellors are beginning to realise they were lawful.

As a rule, Devonshire churches have no chancel arch. This fact gave rise to a discussion at Kenn as to how the figures above the rood loft were set off. Obviously if seen against the flooding light of a large east window they would lose their distinctness. To remedy this a rather drastic means was frequently taken by Mediæval builders. Where there was no chancel arch wall to form a background the whole space between the rood loft and the ceiling was filled in with boarding. This tympanum was not infrequently painted with a representation of the Doom. After the Reformation such a subject was usually replaced by the Ten Commandments. There is only one example of a tympanum remaining in Devonshire, and that is at Parracombe. A rood placed in this way in front of such a background would receive practically all its light from the front.

A twenty minutes' drive took the party to

KENTON CHURCH.

This conforms to the usual fifteenth century Devonshire church plan, but it is a large and handsome example with a west tower and an embattled south porch of two storeys. The richness of the interior is at once noticed. The white stone capitals of the nave columns are carved with foliage and figure sculpture of some variety. The material was evidently much more tractable than the coarse Dartmoor glomerate at Kenton and many other churches. The screen is continuous across the aisles; the covings and gallery across the chancel have been in part recently restored under the direction of Mr. F. Bligh Bond, F.R.I.B.A. The paintings on the lower panels include a noteworthy series of the twelve Apostles, each bearing a scroll inscribed with a clause of the Creed, alternating with figures of the Prophets carrying scrolls with appropriate Latin texts. The extremely elaborate wooden pulpit is octagonal, and the original portions of it are of the same date as the screen.

Mr. Aymer Vallance, M.A., F.S.A., criticised vigorously the figures of the four new angels fronting the rood loft as being altogether un-Mediæval in character, if not actually decadent. He expressed his wish that they could be removed and less feminine figures introduced.

Both Mr. St. John Hope and Mr. Brakspear scouted any suggestion that this beautiful fifteenth-century screen is of foreign workmanship: a not uncommon assertion when any Mediæval piece of craftsmanship in England happens to be of exceptionally high quality.

The final visit of the day was to

POWDERHAM CASTLE.

This is a fortified house of the fourteenth century, which, though built on comparatively flat ground, commanded the Exe. It was built by Sir Philip Courtenay, Lieutenant of Ireland. There was, however, a castle here as early as 970, which served as a protection against the Danes. In the time of William Rufus, its owner having sided with the losing party, it was given to John de Powderham. Next it passed into the hands of the Earldom of Essex. Later it came to the Courtenays by marriage, and it is in the possession of the Courtenays now. When the castle came to be rebuilt the moat and bailey plan was abandoned in favour of the great central hall and quadrangle. Not one single part of Sir Philip Courtenay's castle has been taken down, though various additions have been made, principally as wings; and the lodgings round the quadrangle, if any, have disappeared. The original building consists of a hall and kitchen strengthened with four angle towers and an entrance tower facing the river. During the rebellion it was garrisoned for the King, and was taken in 1646 by the rebels. Until about 1700 the castle remained strongly fortified. In 1735 the owner of Powderham began to give it its present appearance. The great hall was divided into two parts, one of which was completely transformed by the insertion of a grand staircase and plaster wall and ceiling decorations of a remarkable character. A recent writer commenting on their great boldness and originality of design, says: "There is a strong taste of the exaggerated Chinese type of Louis XV. motifs which Chippendale was at that time using in his mantle and mirror frames, and yet there is a preponderance of that English Classic style which began with Wren and ended with Kent, and was so much richer and fuller in treatment than the restrained and cold developments which Chambers and the Adam Brothers introduced very soon after the Powderham work was finished." Large and handsome rooms were also added.

After partaking of tea by invitation of the Right Hon. the Earl of Devon, the party returned to Exeter.

WALTHAM ABBEY (OR HOLY CROSS), WALTHAM CROSS, AND EPPING FOREST.*

By T. BARNETT.

BUT a short distance from London—an hour's journey from Liverpool Street—and we are transferred, as if by a magician's wand, from the noise and bustle of modern life to the old days of England's history, when the foundations of her greatness were being laid, and King Alfred was already foreshadowing her great naval policy.

We find ourselves in the ancient town of Waltham, whose Saxon name, Weald Ham, denotes its position as a town by the wood, the wood being none other than the great Forest of Essex, of which Epping Forest is the surviving remnant. Farmer, in his history, describes Waltham as on the east side of the river Lea, "which parteth Hertford from Essex, and also parteth itself into several small rivers, over which are many bridges." These rivers, he tells us, afford plenty of fish—salmon, trout, eel, carp, and tench—and on one side of the town are large and fruitful meadows, some of which are used in common to the town, and "though innumerable cattle are pastured thereon the ground is so rich and fertile that the cattle constantly kept there never look lean though the grass is never so short." One of these streams runs round the marsh, in which freeholders, and none others, have the right to fish with net or angle. "These rich and fertile meadows and marshes laid in 876, in the time of good King Alfred, under water, which great water was then navigable. Up this estuary, therefore, came the Danish ships, but King Alfred divided the streams into several rivulets, so that the boats lay waterbound, and the mariners were left to shift for themselves over land, which proved a mortal defeat to Danish insolence."

In the time of Alfred the Great there was apparently no town at Waltham, the first foundation of a settlement being laid by one Tovi, a man of wealth and authority, and standard-bearer and chief counsellor to King Canute. He founded the town "for the delight he took in sporting with game, and he placed fifty-six inhabitants therein." This Tovi had a son, named Athelstan, who, proving himself a prodigal, quickly spent all his goods and estates, and the place, after several transactions, returned to the Crown. Edward the Confessor then bestowed Waltham on his brother-in-law, Harold, the greatest of the sons of the powerful Earl Godwin, and here in 1059 Harold built a secular college, and placed therein a prior and twelve secular Black Canons, for whom he amply provided by granting six manors to the dean and one to each of the canons for their maintenance.

The magnificent abbey church was intended by Harold to be as beautiful as that of Edward the Confessor at Westminster, and tradition says that it stood on the site of an earlier church, built by Tovi, in which was placed the wonderful cross which he brought about the year 1030 from Somerset. From this cross the parish took its second name of "Holy Cross." In connection with this cross there is a legend that gives the marvellous history of its discovery at Montacute, in Somerset, as the result of a vision vouchsafed to a smith, a holy man and sexton of his parish. To him appeared three times a vision of our Lord, bidding him to request the priest to assemble the parishioners, and, after prayer, exhortation and fasting, to lead them in procession to the top of a hill to dig for the treasure hidden there, viz. the cross and sign of our Lord's Passion. After the third appearance of the vision the smith communicated with the priest, and he, obeying the instructions of the vision, and accompanied by the smith and a vast concourse of people, went in procession, with holy chant and litany, to the appointed place. At the top of the hill excavations were made, and at a depth of forty cubits a massive block of marble was discovered, through the middle of which ran a deep fissure. Part of the stone was then removed with great care, and there was revealed a crucifix of black flint, with another smaller one under its right arm, and under the left a bell of ancient workmanship, "such as are seen under the necks of cattle," also a black book containing the text of the Gospels. The priest and people, scarcely knowing what to do, erected a tent over the whole excavation, and sent word to the lord of the land, "Tovi the Proud," standard-bearer to King Canute, and he decided to leave the small cross in the church at Montacute, the rest of the treasure to be bestowed in such place as God Himself should appoint. Accordingly Tovi gave orders that twelve white and as many red oxen should be yoked to a waggon, whereon was laid the sacred stone, and, naming

* Read on the occasion of a visit by the Upper Norwood Athenæum.

CROSS).
G FOREST.

his journey from
d, as if by a
e of modern life
the foundations
King Alfred was
y.

Waltham, whose
ition as a town
than the great
s the surviving
Waltham as on
Hertford from
small rivers, over
tells us, afford
tench—and on
meadows, some
and "though
round is so rich
here never be
One of these
reholders, and
angle. "The
in 876, in the
ch great water
fore, came the
streams into
round, and the
er land, which

apparently de
ment with
authority and
change. He
ever and
in "The
y, and the

the church
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

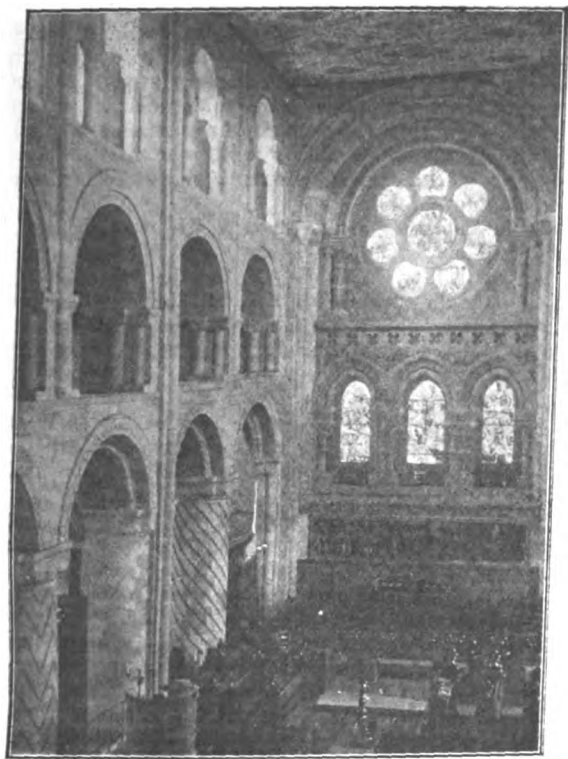
the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

the great
the great
the great
the great

his residences in succession, prayed that the oxen might proceed to one or other of them. The waggon, however, remained immovable until Tovi remembered to name his poor hunting-lodge at Waltham, and immediately the oxen and waggon moved thither at an almost incredible rate. Tovi had promised that he would endow the servants of the Holy Cross with the revenues of the town where the cross should



WALTHAM ABBEY CHURCH.—THE NORTH ARCADE
SHOWING TRIFORIUM AND CLERESTORY.

be deposited, and he appears to have made a foundation for two priests and other clergy, and to have enriched the church with gifts of gold and silver, whilst his wife Glitha bestowed a golden and jewelled crown and other gems, one of which emitted wondrous rays during the night to give light to travellers. The many miraculous cures alleged to have been performed by the Holy Cross attracted crowds of pilgrims to the town in the hope of being healed of their infirmities.

Evidences of these journeys of the devout remain in the quantities of pilgrims' jettons, or groats, found at Waltham, and some years ago a stone mould was dug up in Coleman Street, London, from which metal casts were evidently taken, to be worn as the insignia of Waltham pilgrims.

This mould was cruciform, and bore round it the legend "Signum sancte crucis de Waltham." "Harold and Holy Cross" was the battle-cry the Saxons followed on the fatal day of Senlac, till it was silenced by the "Ha Rou" of the victorious Normans.

Tovi's church did not, however, stand long, for Edward the Confessor, having bestowed Waltham and vast territory upon Earl Harold, the latter determined to rear and endow a magnificent church, which he intended to rival in beauty and importance King Edward's abbey church at Westminster.

Harold's church, in its completed state, was a splendid structure, cruciform in plan, with choir, central tower, nave and aisles. Probably the choir was apsidal, and judging from the position of Harold's tomb extended more than 120 feet beyond the east wall of the present church. Mr. Burges, who restored the interior in 1859, supposes that it had chevets and a Lady chapel at the east end.

Several chantry chapels were subsequently added. On May 3, 1060, the church was consecrated in the presence of Edward the Confessor, and two years later Harold's secular college was founded.

Tradition relates how, in his last march south to meet the Normans at Senlac, Harold paused at his abbey church, and, falling down before the Holy Rood, prayed for success, but those standing by saw the head of the image bow, and took it for an evil sign. Two of the canons therefore followed to the fight to see how it fared, so that if their beloved

King or his brothers should fall they might bring their bodies back to the minster of the Holy Rood for burial. The good monks found their hero among the slain, and finally Harold, as Freeman says, "one of the greatest and best rulers that England ever had," was laid to rest before the high altar in the choir, the tomb being situated, it is supposed, 120 feet east of the eastern end of the present church. It was here, too, that the bier of the great Edward I., on its journey to Westminster Abbey, rested for three months near Harold's tomb, "so that the bodies of the two greatest kings that ever reigned over the whole kingdom of England lay for a short space here side by side." Some ten years after Harold's death his college was dissolved, and an Augustinian priory founded by Henry II., and in 1184 the priory was converted into an abbey, and a good indication of its importance may be gathered from the fact that such great personages as Hugh Nevil, the crusader and High Justice, and the Bishop-designate of Chichester were interred in the choir.

Passing over the restoration of the nave, to which reference will be made presently, the thirteenth and fourteenth century brought various changes, for the abbey was beautified by the insertion of the still existing fine western front and the erection of the Lady chapel and abbey gateway. The year 1540, however, brought evil days for the old foundation, when the monastery was dissolved and its lands confiscated. The destruction of the monastery, choir, transepts, eastern chapels, and central tower soon followed, the nave and its aisles being the only part that remains to indicate its former grandeur. Robert Fuller, the last of Waltham's long line of abbots, was transferred to St. Bartholomew's, Smithfield, of which, strange to say, the eastern end alone is left.

The present church, consisting of seven bays, is 108 feet long, 54 feet wide, and 52 feet high to the roof. The aisles are about 12 feet wide, and both are of the height of the two lower stages. These aisles were originally vaulted, and the triforium passage above was lighted by the circular windows that are now seen. There are three tiers of arches: the nave or arcade, the triforium, and the clerestory. Of the massive circular piers of the arcade two are carved with bold zigzag and two others with spiral grooves, which were, it is alleged, originally filled with chased and gilt metal, some of the rivet holes being still discernible. The arches throughout have chevron mouldings. The triforium is open to the aisles, and consists of bold single arches, but it is supposed that within these were triplets of smaller arches like those in the clerestory. On either side of the west end of the church is a lofty Gothic arch, quite out of harmony with the

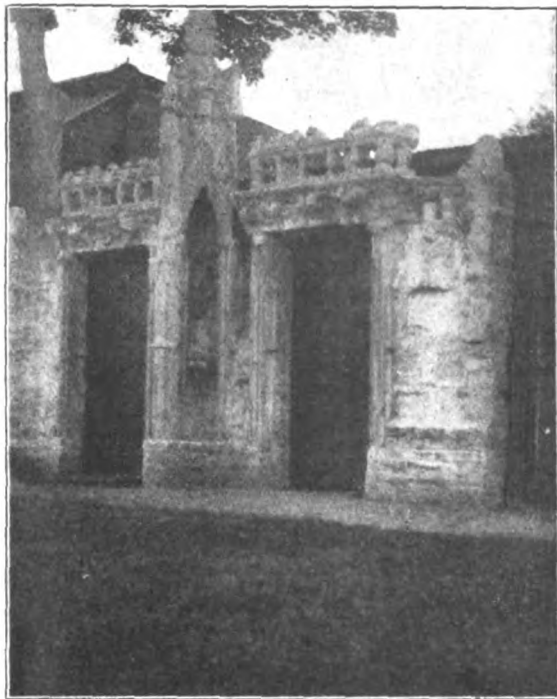


WALTHAM ABBEY CHURCH.—INTERIOR.

Norman arcading. This discordant note was struck by an architect, said to have been demented, who was engaged in the restoration of the edifice at the latter end of the thirteenth century. His mad career was happily stopped by the abbot, and the restoration entrusted to another. To

him we owe the beautiful western doorway and front, which was afterwards, however, largely obscured by the erection of the present heavy tower in 1556-58, for the completion of which funds were raised by the sale of five of the old abbey bells.

The Lady chapel, dating its erection from 1316, is situated at the south-east end of the church, and has some good decorated work, including a fine six-light square-headed window with rich tracery, a piscina, and niches for statues. Traces of a fresco, representing the Last Judgment, are still



THE ORIGINAL UPPER PART OF WALTHAM CROSS, NOW IN THE GARDEN AT THE FOUR SWANS HOTEL.

discernible on the east wall. The chapel was once a chantry—one of five—and subsequently a schoolroom, the first master recorded after the Reformation being John Matthew, who held the post in 1598.

From the chapel one can re-enter the church by a restored Norman doorway, on the right of which remains a fragment of ancient diaper work.

The vaulted and groined crypt under the chapel was formerly used as a charnel house, "the fairest," writes old Fuller, "I ever saw."

There are several sixteenth-century mural brasses in the church, and on the floor ledgers, from which brasses of abbots have been removed. Various interesting monuments adorn the church, the most noticeable being the tomb of Sir Edward Denny, a friend of the poet Spenser and of Sir Philip Sydney, and a descendant of the family on whom the monastic estate was conferred at the Dissolution. The recumbent figure of the knight is clad in armour; below him reclines his wife, whilst their ten children, in attitudes of prayer, are represented on the carved panels beneath. Adjoining this tomb we see the effigy of Lady Elizabeth Greville, first cousin of the ill-fated Lady Jane Grey.

"Some years back," says Mr. Thorne, in his "Environs of London," "there was a warm discussion as to the age of the church, Mr. Freeman decidedly claiming that it is the actual building erected by his hero Harold; whilst, on the other hand, it was as positively averred to be not earlier than the reign of Henry I. or Stephen. That it is essentially Norman is admitted on all hands. Sir Gilbert Scott, who had a larger and more intimate acquaintance with our early churches than most men, says of it, 'There is clearly a difference between the eastern bay and the remainder,' but he does not think it is such as of necessity implies difference of date.' On the 'actual age of the nave,' he 'offers no opinion.' Mr. Burges, who restored the church, is not more decided. Whether it is Norman of the eleventh or first half of the twelfth century must, therefore, be left undetermined."

Mr. E. H. Buckler in his work "The Abbey of Waltham Holy Cross" discusses the date of the church, and quotes Freeman as supporting the view that it was built in Harold's time. Mr. Buckler considers the architectural evidence somewhat opposes this view. Undisputed early Norman work, e.g., at Westminster Abbey, Tower of London, &c., shows plain arches, moulding up to caps, bases, string-courses

and subordinate positions; zig-zag ornament never occurs, and the work is executed with wide joints, indicating the use of the pick rather than the chisel.

"Here," he says, "we find neatly cut stone work, mouldings ably executed, an abundance of slender circular shafts with small caps appear, and the zig-zag ornament is profuse. It occurs incised, also in a fully developed condition at the angles of the arches, while the work indicates the use of the chisel rather than that of the pick."

"The plan, too, is that of a fully developed Norman church of the largest class, showing in all its parts traces of the experience which practice alone could give, and without any of the signs of hesitation that we should expect to find here were this the second essay at such a plan in England, Westminster Abbey being the first. There is, however, a crucial test which will perhaps decide the question once and for all."

"It is known, mainly through the researches of Mr. Henry Parker, C.B., and others, that the best executed, but not early Norman work, is 'fine jointed,' and that a date about the middle of the first half of the twelfth century is assignable to all such examples, while the earliest Norman work is remarkable for the wideness of its joints."

Some buildings exist, however, e.g., Canterbury Cathedral, where the early and late Norman works alike have moderately wide joints. It will be apparent at Waltham that while all the eastern portions have moderately wide joints they average three-eighths of an inch—the whole of the portion to the west of the first piers from the east wall has fine joints. The design is, however, all but identical in both the wide and the fine jointed parts. It cannot be doubted that the widest jointed part is the older.

We have this evidence that the work has been built from the east westwards, thus following the system of which there are so goodly a number of examples. The wide jointed portions are, however, but a few years anterior in date. This is apparent by the mouldings of the arch of the south aisle, which led into the south transept, and which is the only one where the zig-zag does not occur. No earlier date than about 1120 can be assigned to it. Evidences of slow progress westwards are very apparent. The two wide jointed easternmost piers of the nave right and left were evidently erected as an abutment to the arches of the central



NORMAN DOORWAY IN SOUTH WALL, WALTHAM ABBEY CHURCH.

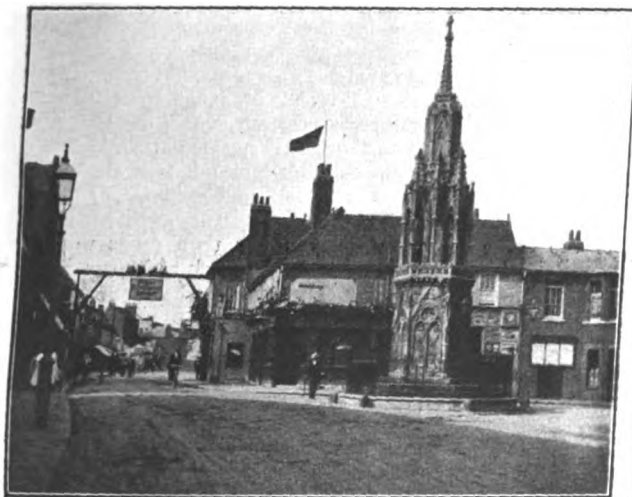
tower, and we can thus assign this reason for their erection prior to the remainder.

The upright joint in the masonry over them on the west side indicates a stoppage and a settlement of the work.

Elsewhere to the west, the horizontal string above the third arch from the west end has been inserted after the arches had been built, and this, with other indications,

leads us to suppose that the triforium and the clerestory only, west of the central tower over the older piers, show signs of having been reconstructed, probably at the completion of the work, since they are of better stone and more ornamental than the others.

Are we to suppose, then, that Normans in the middle of the twelfth century did pull down a comparatively new church simply for the purpose of erecting the present one? There is no evidence that they did so. The evidence of building from the east towards the west is conclusive that the present work is but the completion or extension of an unfinished church. If the western portion is not quite so old as the eastern part of the nave, it is not unreasonable



WALTHAM CROSS.

to suppose that the presbytery still further to the east, and which was in so many other instances built first, was here also of older date, and the work of Harold.

As further evidence, Mr. Buckler cites Mr. Edmund Littler's excavations in 1863, when the extent of the transepts north and south were traced, and no less than eight piers of the presbytery going eastward, four on each side.

These dimensions are the same as those of the existing nave. This evidence alone is sufficient to show that the eastern termination was something more than the short eastern limb with an apse, which the analogy of other large Norman churches led Mr. Freeman naturally to suppose.

In addition to this, the foundations of the north wall are shown to have extended no less than 164 ft. 5 ins. to the east of the present ending of the church. These were removed about thirty-two years ago.

Although the eastern extremity of the work was not reached, we have by the length named the evidence of a very anomalous plan.

The eastern portion of the church, by this evidence, appears to have been actually longer than the nave.

Space forbids my lingering longer over the many details, historical and architectural, which are worthy of notice, but we must glance at the ancient Purbeck marble font, the fine rose window and the lancets, depicting the seven days of Creation, designed by Sir E. Burne-Jones; the handsome reredos of stone, richly carved, gilded and coloured, representing events connected with our Lord's birth.

The decoration of the flat ceiling of the nave was undertaken by Sir Edward Poynter, now P.R.A., who has introduced into the centre of his design the signs of the Zodiac, on either side of which are geometrical patterns, alternating with figures personifying the months.

The chain-marks on one of the piers speak of days when the English people gathered to hear the Bible stories read in their own tongue, from the only copy open to them. In the church porch an elegantly carved whipping post will interest Mr. Matthews and those of us who heard his interesting paper on "Some Old Time Punishments."

This brings us to the outside of the Abbey, and we must not fail to notice an aged elmi tree in the churchyard, the trunk of which is nearly twenty feet in circumference, at several feet above the ground.

In the old town, too, are many interesting buildings, one being the reputed home of John Foxe, where he wrote his famous "Book of Martyrs."

Near the Abbey mill is an open square, surrounded by ancient dwellings, called "Rome Land," and as at St. Albans and Norwich, it is probably so called from the rents having been appropriated to the Holy See. Cranmer is said to have resided there when in reply to Fox and Gardiner, in discussing the question of Henry VIII.'s divorce from Katherine of Aragon, he said the matter should be referred to the Universities, a course afterwards acted upon by the king. The stream is crossed by a quaint bridge, still called "Harold's," and said to be Norman; it may well have been crossed by the last of the Saxon kings, and perchance by the two canons who so faithfully followed him to the fight at Senlac.

From the times of Alfred, Canute and Harold, all through the long story of our island, through good and evil days, the Abbey has borne its part, until, in our own times, another Alfred, Lord Tennyson, was inspired by the view of its tower and the music of its bells to write some of the most beautiful lines of "In Memoriam":—

Ring out wild bells to the wild sky,

Ring out a slowly dying cause,
And ancient forms of party strife;
Ring in the nobler modes of life,
With sweeter manners, purer laws.

Ring out old shapes of foul disease;
Ring out the narrowing lust of gold;
Ring out the thousand wars of old,
Ring in the thousand years of peace.

ELEANOR'S CROSS.

Although the Holy Cross, which made Waltham a sacred place before Harold's time, is no longer to be found there, yet the town is fortunate in possessing one of the ten beautiful crosses erected by Edward I. to his Queen Eleanor, of which only three original specimens remain. The queen accustomed to accompany her consort on his travels, went with him to Harby or Hardeby, near Lincoln, where she died, and the king, stricken with grief at the loss of such a beloved companion, determined to perpetuate her memory by erecting a cross at every place where her body should rest in its journey through the country to its final interment in the Abbey at Westminster. As these crosses were to be erected "in the most sumptuous manner possible," it is fortunate that three of them have been preserved to us, and that of Waltham is a specially elegant specimen of Middle-Pointed or Early English architecture. It was constructed by Dyminge de Legeri and Roger Crundale, and was placed on the main road at Waltham, where a side path branched to the Abbey. The original platform from which the cross rose had ten steps, since reduced to four. The cross is hexa-



HAROLD'S BRIDGE, WALTHAM ABBEY.

gonal in design, each side being divided into two panels, in each of which are two shields bearing the arms of England, Castile, Leon and Ponthieu. The panels are surmounted by pointed three-cusped arches, and these support a quatrefoil ornament with a gable above each panel, being very richly decorated with carving and diaper work. The second storey is separated from the first by an embattled frieze work, the angles being supported by a graduated buttress, which is ornamented by foliated finials. This storey contains the

tabernacles or niches which shelter the three statues of the queen, and they terminate in beautifully decorated gables. The third storey is carried out also in hexagonal shape, and is decorated with tabernacle work, and from this rose the shaft of the cross, which was replaced when the monument was restored by Mr. Harry Hems, who was careful to introduce as little new work as possible, but the best example of the original work is found in the lowest storey. The cross, as at first erected, must have been one of great beauty, albeit the houses were allowed to encroach too near to it, until at last the roof of one of them was found to be actually leaning against one of the statues of the queen. Now, however, it stands in an admirable position in the middle of the cross roads, Sir H. B. Meux having purchased the adjoining inn, in order to clear away the obstruction.

The "Four Swans" inn was probably in early days the only house of any importance near, and tradition states that the body of Queen Eleanor rested there.

Before leaving Waltham, one cannot fail to remember that it is still the town by the wood, for the Forest of Epping hard by may well remind us of the time when it was the favourite hunting ground of our kings and their nobles, and although Tovi the Proud and other bold sportsmen no longer lead the chase along the greensward, yet we may still see the fallow deer in its remoter glades, and some of these are thought by naturalists to be descendants of the forest in Anglo-Saxon times.

Although the men of Waltham no longer go forth to the chase or the fight, yet the little town plays an important part in the defence of the nation, for here are the famous gunpowder works, situated on the banks of the Lea, screened from sight by groves of poplars and willows. These are the only powder mills belonging to the Government, the explosives made being gunpowder, gun-cotton and cordite. Every precaution is taken against explosion, and the screens of trees, planted between the various houses, are intended to serve as protection against injury should any accident take place, as they would break the force of an explosion. At present the works look like the abode of peace, and we can only hope that in the future they may be turned to another purpose, when Waltham's bells shall in reality be ringing out the thousand wars of old, and ringing in the thousand years of peace.

In conclusion, I desire to thank Mr. Spiers for the loan of several works of reference; Messrs. Biden, Matthews, and Weise for their kindness in taking photographs, and the Rev. Gifford Johnson for generous assistance at the church.

Amongst works consulted I would mention Farmer's and Winter's "Histories of the Abbeys"; Thorne's "Environs of London"; Walford's "Greater London," and the "Victoria History of Essex."

ALFRED EAST ART GALLERY, KETTERING.

How often has it been said that "a man gets no honour in his native place"!—and that, too, with an air of cynicism, such as Diogenes might have envied. It is at last but a half-truth; and here, in Kettering, its truth is altogether falsified. But perhaps we shall be not too cynical if we amend the dictum so as to read, "A man is honoured at home in proportion to the honour he receives abroad."

Sir Alfred East, R.A., has made a great name for himself in the ranks of landscape-artists, and it is a graceful act on his part to desire that his birthplace should benefit by the glamour of his name and fame. His proffered gift of some half-hundred of his artistic productions met with the cordial response that might have been expected, a response which required translation into brick and stone in the form of a permanent art gallery. This building has just been completed, and the last touch of grace was given upon the occasion of its formal opening on July 31 by the Right Hon. Earl Spencer, K.G., in the presence of a large and representative gathering. There was, as it were, a sense of the performance of the play of "Hamlet" with the title-role character omitted, seeing that Sir Alfred East was, unfortunately, not able to be present, due to his serious state of health; but if sympathy and the expression of good wishes and appreciation can cure, we shall soon have the famous artist restored to our midst.

For the building itself (the work of Messrs. Gotch & Saunders) we have nothing but praise. In the first place, it expresses itself, and it does so in a simple art language altogether admirable. This is no banking house aping the Italian palazzo, no lunatic asylum mimicking a royal resi-

dence; it is an Art gallery revealed. This well-proportioned building exhibits a design in quiet Classic, with an almost entire absence of ornamentation in the current sense of the word. Roman Doric half-columns, grouped at the entrance and at the angles, support the plain entablature of this one-storey building, which is en suite with the public library and with the proposed municipal buildings. These, in conjunction with the fine church, the shadow of whose tower and spire rests upon the group, bring into one focus Art, Literature, Church, and State.

The building (carried out by Messrs. E. Brown & Co., of Wellingborough), consists of two galleries (severally 40 feet by 24 feet and 27 feet by 24 feet) and a central corridor. One gallery is reserved for the artist's oil and water-colour works, and the corridor for his etchings. The other gallery is to be utilised for the works of other artists, and no time has been lost by a generous donor in providing a nucleus for this collection. The central corridor (where a fitting bronze memorial tablet is fixed) leads from the entrance to the museum, the position of this entrance being prompted by a regard to the future municipal block.

The stone used for the exterior facing is from the Weldon quarry, practically local, supplied and prepared by Messrs. W. T. Cox & Co., of Kettering. The tints are nicely varied, but the stone is somewhat yellower than meets with our approval. The stone carving is the work of Messrs. H. H. Martyn & Co., Ltd., of Cheltenham. The position of the vent gratings in the galleries is to be approved, being centrally situated, instead of against the walls. The floors were executed by Messrs. J. Ebner & Co. in their well-known Ebnerite.

The galleries and corridor are top-lighted, careful consideration having been accorded, to minimise unpleasant reflections, the wire-wove glass used throughout being installed by Messrs. Mellows & Co. The height, too, of the galleries has been well-considered, 15 feet from floor to cornice being not too high (excess in this respect being too frequent an error). The dull maroon tone throughout forms a suitable background, this being replaced by a buff tone on the walls of the corridor. The entrance doors are of oak, the upper panels being carved.

The constructional steelwork of the roof is by Messrs. Smith, Walker & Co., of Westminster.

We need not report in detail the various speeches made. The Chairman and Lord Spencer and others said what one expects to hear on such occasions, though we confess to some amused surprise on our part when one of the speakers (thinking to be complimentary) said that "the name of Spencer was a by-word in the county." Of course, we all knew what was meant, but it might with advantage have been expressed differently. Amongst those on the platform we were pleased to see and hear Sir Aston Webb, who knows so well how to say graceful nothings with an alluring pleasantness. In fact, it is not so much what he says as the charming way in which he says it. And so, *Fare!*

[We hope to publish illustrations of the gallery next week. Ed.]

PATENT OPPOSITION CASE.

A CASE of some interest has just been decided at the Comptroller's Court in London by Mr. H. Hatfield, acting-Comptroller-General, in the matter of an opposition raised by Hydro-Vacuum, Ltd., of Glasgow, to the grant of a patent to Mr. Campbell Morton for hydraulic air ejectors applicable to vacuum cleaning and other purposes, which the applicant is putting on the market in conjunction with Messrs. A. Schonfield & Co., Glasgow. After hearing both parties the Comptroller has now given the following

DECISION.

The grant of a patent is opposed on the grounds:—

1. That the invention has been claimed in the complete specifications of the following British patents of prior date, namely, 1106, dated January 16, 1908, No. 21,327, dated October 9, 1908, No. 29,640, dated December 21, 1910, and No. 4,836 of 1911, dated December 21, 1910.

2. That the applicant obtained part of the invention from the opponent, W. J. Frame.

Mr. Fulton appeared at the hearing as counsel for the applicant, and Mr. Fitzpatrick as agent for the opponents.

The inventions relate to hydraulic air injectors intended primarily for use with apparatus for cleaning by vacuum.

According to the earliest of the opposing specifications, namely, 1,106 of 1908, the opponent, Frame, would appear to be first in apparatus of this kind to so break up the water

into small globules or particles as to force the air down a diffusing tube and thereby obtain the necessary suction.

In the specifications cited by the opposition several arrangements are shown for breaking the water up into small particles. The applicant's apparatus also contains means for attaining this object.

The question before me on the first ground is whether the precise means to which the applicant's claims are limited have been claimed in the prior specifications as alleged.

The opponents have not put in any statement under Rule 40 with reference to the first ground of opposition. At the hearing, Mr. Fitzpatrick objected to the applicant's specification on the ground that it does not contain a clear statement of the nature of the invention. In the absence of such a statement he contended that the specification should contain a disclaimer to the provision of an adjustable water-jet tube, and also to the provision of a cascading jet as shown in the applicant's Figs. 1 and 8, as such a jet was covered by the claims in the opposing specifications. He also desired an amplification of the first paragraph on page 3 of the applicant's specification.

The applicant gave evidence at the hearing, and stated that the salient feature of his invention was the use of a succession of deflecting nozzles, which enabled him to get the necessary suction from an ordinary water supply, and therefore obviated the necessity for very high water pressure.

After full consideration, however, I do not think it is necessary to add anything to the applicant's specification. Although the specification does not contain a general statement of the nature of the invention, the claims are quite clear, and are for specific combinations not claimed in any of the opposing specifications. I may remark in passing that the opponent has not objected to the specification on the ground that the nature of the invention or the manner in which it is to be performed is not sufficiently or fairly described and ascertained in the complete specification. As regards the insertion of a disclaimer to the adjustable water-jet tube, I think that such tubes are too well known in connection with injectors and ejectors to need disclaiming, and that the specification as it stands would not lead anyone to think such construction novel *per se*. The other disclaimer suggested by Mr. Fitzpatrick, namely, to the cascading jet, is, in my opinion, not necessary. As regard the modification of the first paragraph on page 3, Mr. Fitzpatrick suggested an amendment with a view to bringing this paragraph more into line with claim 1 of specification 1,106 of 1908, by the insertion of after the word "impinge" at line 3 of the words "upon itself and," and by the addition to the paragraph of the words "small globule or particles forcing the air or gas down through the diffusing tube." It seems to me that, inasmuch as the opponent, Frame, amended, under Section 21 of the Patents Act, his specification 1,106 of 1908 by the removal of the words "not by virtue of skin friction alone, as in the apparatus hitherto in use, but mainly by the pushing or forcing action of each globule of liquid on the air which is in front of it," it is undesirable to force the applicant to describe in somewhat similar terms the action of his apparatus. The applicant's claims, as I have stated, refer to specific combinations of parts of the apparatus, and whether the action stated in specification 1,106 of 1908 actually takes place or not is, in my opinion, immaterial to the issue before me. I, therefore, shall not require any amendment of the paragraph in question. Consequently, the opposition on the first ground fails.

The opposition on the second ground is based upon certain transactions when the applicant was a paid servant of the opponent company. I have considered the declarations filed, and have taken oral evidence of the declarants McKellar, Duncan, Frame, and Morton. It would appear that the applicant was in the employ of the company from October 1910 to October 1911, and during a considerable part of this period he (the applicant) and the opponent, Frame, were endeavouring to improve the apparatus manufactured by the opposing company.

The opposition on this ground is directed against the construction of the apparatus shown in Figs. 3, 5, and 8 of the applicant's specification. These constructions are claimed in claims 2, 3, and 4 respectively of the applicant's specification.

There is no documentary evidence showing the existence of these particular constructions at the time when the applicant was working for the opponent company, and the oral evidence does not establish the obtaining of these precise constructions from the opponents. Drawings are exhibited, made by the applicant, of other arrangements, and after carefully considering the evidence before me I am clearly of

opinion that the opponents, upon whom the onus of proof rests, have not justified the opposition upon this ground. The date of the applicant's application for a patent is January 9, 1912, some three months after he had left the company, and I am satisfied that although parts of certain details of construction shown by him are similar to details made by the opponent company, the particular combinations to which his claims are limited are, so far as the evidence goes, the invention of the applicant, and not that of the opponent, Frame. The opposition on this ground therefore fails.

I accordingly decide to seal a patent on the application, provided the law officer directs the sealing under Section 12. Sub-section 2 (b), and I award the applicant, Campbell Morton, the sum of five guineas in respect of his costs, and direct the said sum to be paid by the opponents, Hydro-Vacuum, Ltd., and William Johnston Frame.

In the event of application being made to have this order made a rule of the Court, I award the said Campbell Morton a further sum of three guineas to be paid by the said Hydro-Vacuum, Ltd., and William Johnston Frame, but no such application is to be made until the expiration of fourteen days from the date of this order.

Dated this 28th day of June, 1913.

(Signed) H. HATFIELD,
Acting for the Comptroller-General.

THE ARCHITECTURE OF RAILWAY STATIONS.

By M. S. BRIGGS.

I.

IN many a lofty Victorian dining-room there still hangs a steel engraving of one of those pictures in which our grandfathers delighted. Frith's "Railway Station," together with his "Derby Day" and his "Margate Sands," was one of the causes of his easily-acquired reputation. It was painted at a peculiarly fortunate time, when the great railway boom was in vogue and when railway shares were far more desirable than at the present day; and this, rather than any inherent beauty of its own, may serve to explain its popularity. The scene is Paddington exactly half a century ago. Costumes have altered their fashion since then, and there is a striking contrast between the lumbering train at the platform and the luxurious rolling-stock of the "Cornish Riviera" express, now standing daily in the same place. But the station itself, the thing mainly concerning us in this essay, remains substantially as in 1862.

Paddington is not, however, a real criterion of progress, for, during the eighty years since the first railway station came into being, there has been evolved a huge and sumptuous type of structure very different from the rough sheds of the 'thirties.

It is difficult to picture the conditions prevailing in England when the first railways made their appearance. The earliest instance is the Stockton and Darlington Railway, opened for traffic in 1825, but the Stockton station does not appear to have been erected till several years later. The writer has discovered an early print of this building, which well illustrates its scope and purpose.

The primitive travellers of George IV.'s reign do not seem to have had any exaggerated ideas of comfort in this respect. It was still an epoch of coaching days and coaching ways, when shivering passengers took refuge in some hospitable inn. The new railways were intended primarily for the conveyance of goods, and at Stockton a mere shed was provided for sheltering merchandise. This may date from 1830 or a little later, but it is hardly what we should call a passenger station according to modern ideas.

Another very early case was at Canterbury, where on the Whitstable Railway, opened in 1830, a goods shed or station of some size existed. This short line to Whitstable was not a railway, strictly speaking, for all its length, being worked by stationary engines up and down an incline, except the last mile into Whitstable, where the little "Invicta" locomotive was used. The position of the aeroplane at the present day is analogous to that of the locomotive in 1830. People were uncertain of the new power's abilities, or whether it had come to stay. There was a general desire for a tunnel, and Stephenson had actually to alter his original designs to provide one. The new tunnel became a source of great joy to the frivolous and unemployed of Canterbury Town, so that it was soon necessary to fix gates at each end and lock up this popular promenade.

A more serious view of the permanent value of the new invention was taken in Lancashire, the line from Liver-

pool to Manchester, opened in 1830, being the first railway of real importance. Commercial considerations were again responsible for this new scheme, the cotton industry of Manchester having increased at a remarkable rate during the previous decade, owing to the improvement of machinery. The raw material came up by canal from Liverpool, but an additional means of transport was felt to be necessary, and thus—although passengers and mails soon became an important factor—the goods traffic was the first essential. The terminals of the line were warehouses rather than passenger stations, but an attempt was now made to render the "Railway Office," as it was first known, more attractive than a mere goods shed. Among those charming aquatints of Ackermann's depicting the various scenes on this railway is one showing the railway office at Liverpool. The space known in America as the "train shed"—that is to say, the central area occupied by the train standing in the station—is covered by an ordinary roof of flat pitch, not glazed so far as one can see, supported on timber trusses of queen-post form. A flat roof some 8 feet wide connects this with the office building, and serves to cover the primitive platform. The latter is paved, and is raised perhaps a foot above the rails, not by any means high enough to allow of a passenger stepping direct into the high carriages, which took their name and design alike from the more romantic roadfaring coach. The office buildings are completely devoid of interest, differing in no way from any other block of buildings of similar dimensions and date, with two storeys of rectangular windows and doors and a half-hearted attempt at a cornice. The only decorative feature is a perfectly flat clock-face on the platform wall, and a hint of a rudimentary time-table pasted near it. The gay loungers in crinolines and top-hats—their multi-coloured packages bestrewn the lines—appear far too interested in their surroundings to be tempted into a waiting-room, but we are assured that a waiting-room was now considered a *sine qua non*. A service of railway omnibuses carried passengers from the office to some more central position in the town, thus defeating the chief point in favour of the still surviving coach, and some accommodation was required for those using these vehicles. Small cardboard tickets of uniform size were not invented till a slightly later date, but nevertheless some sort of a booking-office became essential.

Nothing is said in the official memoir of this enterprise of the architect of the Liverpool railway office, and, indeed, there is no reason why anything should be said of him; but a little further up the line is a Moorish archway, "erected after the design of Mr. Foster, an architect to whom Liverpool owes many of its recent embellishments." A few years earlier this arch would have been described, with some truth, as a surprising invention.

The historian, however, reserves his purple patches for a thrilling description of the Edge Hill tunnel by night, a ravishing vista with single gas jets spaced thirty yards apart, for long the resort of fashionable Liverpool, and on reaching Manchester he refers calmly to the "Company's station" in Water Street. This station, or rather the approach thereto, is also illustrated by an Ackermann print. The lines are elevated, and cross a road adjoining the station on a girder bridge, supported by a range of Doric columns on either footway. The façade of the station itself towards Liverpool Road constitutes a praiseworthy move in the direction of architecture, and indicates a more or less public building. Given a better *milieu*, it might even be said to have a certain charm, and all these early stations, with their Greek Revival details, are free from the vulgarity which followed the subsequent introduction of cast iron.

A clock was fixed over the door, with a sundial as neighbour to check its lapses, and a horn was blown to hurry passengers. The booking-hall was situated immediately within the entrance, and thence passenger and luggage had to surmount two flights of steps to the narrow paved platform, in this case not raised but rather lower than the rails, so that on alighting from the "Wellington" or the "Queen Adelaide" on a wet night one stepped into a rivulet below. At Manchester, as at Liverpool, warehouse accommodation took precedence of other considerations, and the little out-houses on the platform are of the meanest description. There was no roof over the train shed or platform, and goods, passengers, and parcels were all dealt with promiscuously.

A marked advance in railway architecture is to be noticed in the first two years of Queen Victoria's reign, when the London and Birmingham—now the London and North-Western Railway—commenced to run its trains into Euston Station. This line was authorised in 1833, and was the first railway to enter London. The great Doric portico of Euston is familiar to all travellers, and is a fine specimen of the Greek

Revival, being the work of Philip Hardwicke, who also designed the Central Hall. It will be noticed that these buildings display a trained architect's hand, and indicate the growing importance of the railway station. At the old Birmingham Station, also opened in 1838, is a similar idea, the fine triumphal entrance screening the still ugly train shed, and surpassing Euston as a design. In fact, this Birmingham portico recalls the work of Decimus Burton in its scholarly proportions. The Central Hall at Euston is another Neo-Greek example. At the present day it is lost among a welter of confused offices, and seems to call for a new scheme of decoration. It forms very nearly a double cube, being 137 feet by 62 feet and 62 feet high. A portion of the original train-shed roof is actually still standing, consisting of two spans. These originally covered the arrival and departure platforms, each with double lines, and are noteworthy for two facts—that the trusses (about 40-feet span) are of cast iron, and that the roof was pierced for light and ventilation. Both ends remained open as before. Euston Station has changed greatly since the 'thirties, and is, to a stranger, one of the most confusing in London. Only in front has its architecture been considered. The hotels to right and left of the great portico are now connected, and in 1870 an approach was formed through the gardens of the Square from Euston Road.

It is curious that, at a time when Nash and Decimus Burton were doing so much to beautify London, there was such a disposition to ignore the railway station as an element in town planning. Such was the hostility to the new innovation in certain quarters that the London and Birmingham was originally to terminate at Camden Town, while the new line to Bristol—now the Great Western—was forbidden to come nearer than Bishop's Road, Paddington. This latter station was again an ambitious architectural treatment of a frontal screen, and distinctly creditable as a design, yet the authorities remained inexorable on the point that the new railways must remain in the fields outside London, the Euston and Marylebone Roads being then the boundary of the city. There are actually several well-known towns in England which are lamenting to-day that they were so short-sighted as to refuse to have a railway within their boundaries seventy or eighty years ago, and many a stout burgess of Kingston or Chertsey or Howden must have cursed the folly of his grandfather as he trudged wearily from a remote station to his home.

One of the most remarkable characteristics of the London and Birmingham, as of some other early railways, was the general excellence of that form of architecture which nowadays is classified as engineering—masonry, tunnel-arches, bridges, and retaining walls. This country would possess many more such examples of sound building if architects and engineers understood the rudiments of each other's craft so thoroughly as did those first railway pioneers of 1838. Had it not been for stupid obstruction, we might perhaps to-day have a scheme of town-planning originating in the 'thirties, by which railway stations were honourably placed, and we might have seen some connecting link between the fine portico of Euston, the church of St. Pancras, and the broad quadrangle of University College—a great memorial of the Greek Revival.

The next important line to be opened was the Manchester and Leeds Railway inaugurated early in 1841. In the contemporary official description of Victoria Station, Manchester, accompanying an interesting and artistic series of lithographs illustrating points along the route, we see a considerable development in the idea of an important terminus.

"Although not possessed of any high architectural decoration, the Victoria Station may be truly said to be a handsome edifice 'designed in what is termed the Roman Doric style. Its extent is 266 feet long by 36 feet in width, and the material used in its erection was Brighouse stone.' The centre of the structure forms a splendid refreshment-room, which presents a frontage of about 60 feet; internally its dimensions are 40 by 22 feet. The easterly portion of the station contains the offices of the Manchester and Leeds Company, and the westerly portion the offices of the Liverpool and Manchester Company, with waiting-rooms for female passengers, parcel offices, and residences for the stationmasters. This station appears to be the most spacious in England, possessing a larger covered area than even the Derby Station; for its extent from near York Street, Cheetham Hill Road, to Great Ducie Street, is 852 feet, with an average width of 130 feet. 'To the length of 700 feet the station is covered in with an iron

roofing, erected in three compartments, having a width of about 114 feet, forming the largest extent of railway roofing in the kingdom, occupying a space little short of 30,000 square feet. The appearance of the interior of this singularly splendid and vast cavernous-like avenue, when viewed from almost any point, is strikingly impressive; the ingeniously complicated form of the ironwork of the roof, the range of skylights admitting glimpses of light from above, the colonnades of graceful pillars on each hand, the numerous trains of passenger carriages and goods waggons almost constantly in motion, either arriving or departing, the bustling movements of the railway officials and servants, the ever-changing groups of passengers passing to and from; the aged, the young, the opulent, and the humble; all diversities of condition, habits, countenance, and temperament; some engaged in familiar converse, others reserved even to a fault; a few rendered careworn by their very opulence, and here and there a wayfarer obviously unhappy for want of pecuniary means, form altogether a most extraordinary scene, productive of ample materials for useful and refined thought to a reflective mind."

Such refined thought, however, is hardly critical, and to a later, if less high-flown, observer the interior of this station is dull to a fault, the exterior being correct enough, though ill-suited to the ravages of Lancashire smoke, which invariably leaves nothing of an architectural design but its silhouette.

Other stations are merely "neat" in the accepted Albert terminology, but Brighouse might attain to being curious, for it is "a tastefully-constructed edifice, somewhat in the Chinese style." A reference to the plate, however, produces a feeling of disappointment, and it is unlikely that any true-born Celestial would acknowledge the description.

Normanton, near Leeds, is interesting as being a new type of station, with office buildings, on the main island platform connected with the nearest street and with other platforms by a bridge. This structure still exists substantially in its original form.

Part of Bristol Station—the portion now used for the South Wales traffic—dates from 1840, and is roofed with huge four-centred trusses of 74-feet span.

In 1852 the Great Northern Railway entered London and opened the great terminus at King's Cross. The building has some claim to be considered the ugliest of all London stations, in spite of the fact that, more than many others, it does form an architectural design. It suffers severely by comparison with its neighbour, St. Pancras. But on the whole its chief drawback is its position, so that all round its frontage there exists a perfect death-trap for pedestrians. Much of the recent expensive alteration at the neighbouring Metropolitan station might have been avoided if the engineers of 1850 had taken a common-sense view of the probable increase of traffic in the Euston, Pentonville, and Gray's Inn Roads, and of the consequent need for carefully-planned approaches to and exits from their termini. The Great Northern Hotel adjoins the station buildings, but is separated from them by a street—a boon to visitors afflicted with insomnia. The practice of uniting hotel and station does not appear to have become frequent at this date, and at Manchester and Normanton the hotels which stood just outside the station entrance were in private hands. There is little to notice in the architecture of King's Cross, the train-shed being covered by two spans of semicircular glazed roofing carried in the centre on an open arcade of stock bricks. Indeed, part of the gloomy appearance of these buildings is due to the use of stock bricks throughout, the hotel itself being a creditable specimen of architecture.

The planning of King's Cross Station—more especially of the small local stations grouped all round the main-line terminus—precludes a satisfactory unified design.

The present station at Paddington was erected in 1854 by the celebrated engineer, Brunel, at a cost of £650,000, and is sunk several feet beneath the level of the adjoining streets. The frontage is occupied by the large hotel, approached direct from the platforms, and is by no means as successful in appearance as that at King's Cross. On the whole Paddington appears to be well planned, but an objectionable feature is the invariably-crowded condition of the "concourse," or circulating space at the end of the platforms, a medley of mail-vans, milk-carts, and passengers at any time of day. This defect would appear to be due to the narrowness of the site, so that lateral expansion has always been impossible.

At Newcastle is an admirable station, so far as scenic effect goes, built at a cost of £90,000 in 1850. In those days there was not the same demand for through traffic as now exists, when practically all the expresses run through, stopping only for ten minutes or so. Hence great alterations have been necessitated beyond the normal expansion caused by increase of business. It is sometimes forgotten that a through station and a terminal station require a totally different architectural treatment, the approach being in the one case at right angles to the railway lines, in the other parallel to them. This point will, however, be dealt with later.

Charing Cross forms a typical example of the mid-Victorian terminus with a monumental hotel frontage, disfigured at its ends by escape staircases. It rises to a height of seven stories towards the raised station yard, much more towards the sloping streets on either flank. The weakest point of this building is the mean character of the offices beneath the hotel, low and dark in the sunniest weather. Considering the rectangular and simple plan, the arrangements within are bad, though the unfortunate accident of a few years ago, when a portion of the structure collapsed, need not be cited in this connection. The ill-fated iron roof in one span has been replaced by the lower pattern more favoured in modern practice.

Before passing on to the most successful of Victorian termini in London, something should be said of those countless railway stations all over the British Islands whose architecture is beneath contempt. In such important cities as Leeds and Cardiff, always handicapped by industrial surroundings, the most despicable building in the place is the large railway station—a miserable conglomeration of old iron and dusty glass. In Cardiff is to be seen one of the most wonderful modern architectural centres in Europe, a perfect galaxy of beautiful buildings, and one can hope that public spirit will eventually force the Railway Company to provide a better approach; but in Leeds the citizens have for years endured the sight of the hideous sheds of the Midland Station on one side of what might otherwise be a really fine square. Now, alas! when railway shares are depreciating, and working expenses in other directions are rising, is no favourable time for improving the facades of railway premises. In the days of the great boom it might have been done, but then the spirit of town-planning seems to have been hibernating.

(To be continued.)

THE LONDON SALON OF THE ALLIED ARTISTS' ASSOCIATION, LTD.

AMIDST all the impressionist, post-impressionist, aujourd'huiiste, futurist, cubist, and divisionist revel, there is included in this exhibition a modicum of sane Art which carries us back to the healthy manner of late Victorian work, such as that exhibited by Misses Eva Dell, Joan de Brie, Anne Marks, Mabel Messer, Maud Heaps, Miriam Deane, Elinor Dowson, and one or two others amongst the ladies, and Messrs. Charles Prescott, A. O. Raine, W. Hetherington-Bromilow, T. A. D. Wills, G. Herring, A. Starling, and A. B. Cull amongst the men, to whom also a few names may be added. To the elaborate attention we paid to the Exhibition we cannot give much effect here, but we will select some few works and artists for notice, some to be enthroned, and some otherwise. Mr. Prescott's portrait of Mrs. Battim is vigorous, but the pose is inartistic, not to be excused even should it be entirely characteristic of the subject. Miss Joan de Brie shows a very bold and effective portrait of a girl clad in grey, and with black hat and scarf; the title, "The Purple Hills" is not very explanatory. Mr. Brodsky has some awful work on show in different media; "The Guitarist" is post-impressionist of the aujourd'huiiste type; need we say more? Need we add that this connotes garish colouring, mis-drawing and lack of composition? And his pen-and-ink sketch of Mr. Jacob Epstein is suitable for poster work alone, if, indeed, for that. We will not dwell much upon this class of work, but would remark, in passing, how even the catalogue is infected (or perhaps merely affected) by the spirit of "post-impressionism," titles of works being heedlessly transposed, leaving it to the visitor to make order out of chaos. Miss Ethel Wright, who disappoints us nowadays, has one redeeming work in the "Portrait of Miss Bryce." Mr. A. Wolmark exhibits, amongst others, "A Decorative Arrangement"; where is

MODERN EUROPEAN ARCHITECTURE.
FRANCE.[From *La Construction Moderne*.]

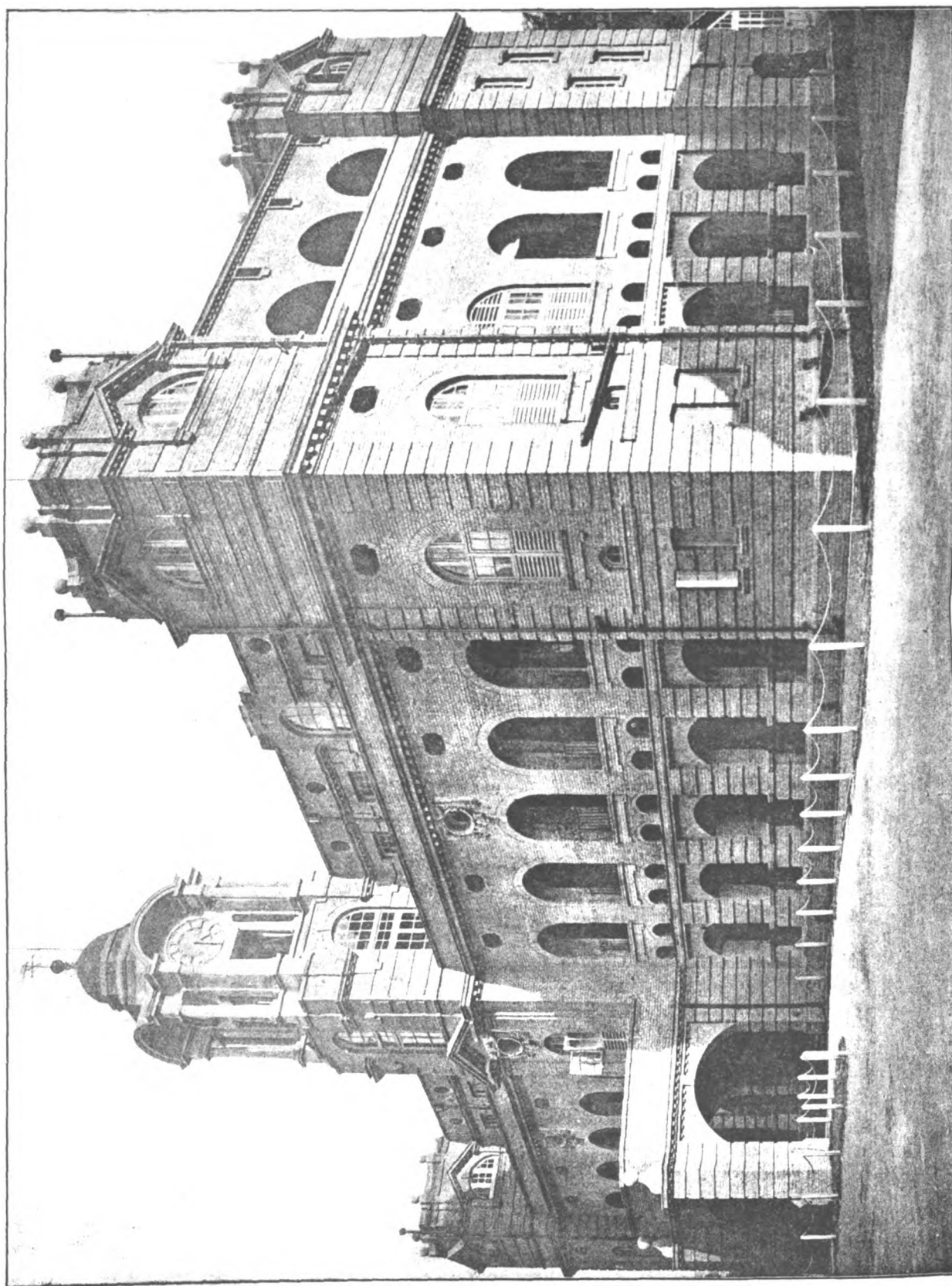
RESIDENTIAL FLATS, AVENUE ELISEE-RECLUS, PARIS.—Mons. VIMORT, Architect.

the decoration in mustard-colour flesh against a brilliant green base and a chrome background? Nor, looking at the two nude figures, can we marvel that they turn their backs upon each other.

Mr. George Hancock exhibits good work in "Choice Dessert," after the manner of George Lance; and Madame Grosclaude-Bodenstein deserves laudatory notice for "Parfum Mystique," a striking profile study of a girl



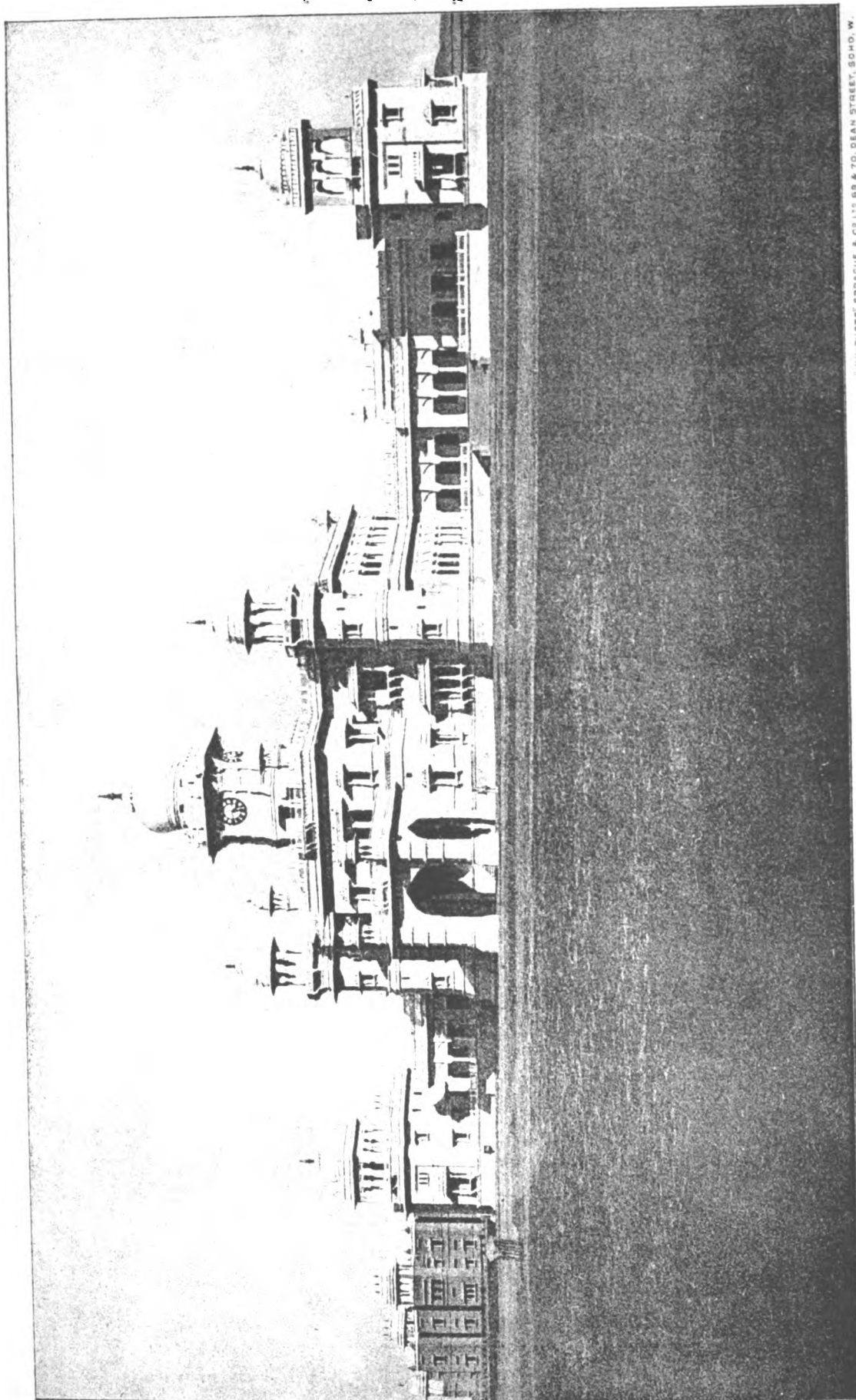
The Architect, Aug. 8th 1913.



INK PHOTO SPRAGUE & CO. LUGER & TO DEAN STREET, SONO. W

FOURTH BLOCK, CALCUTTA MEDICAL COLLEGE.
MR. JOHN BEGG, F.R.I.B.A., Architect.

...CALCUTTA MEDICAL COLLEGE



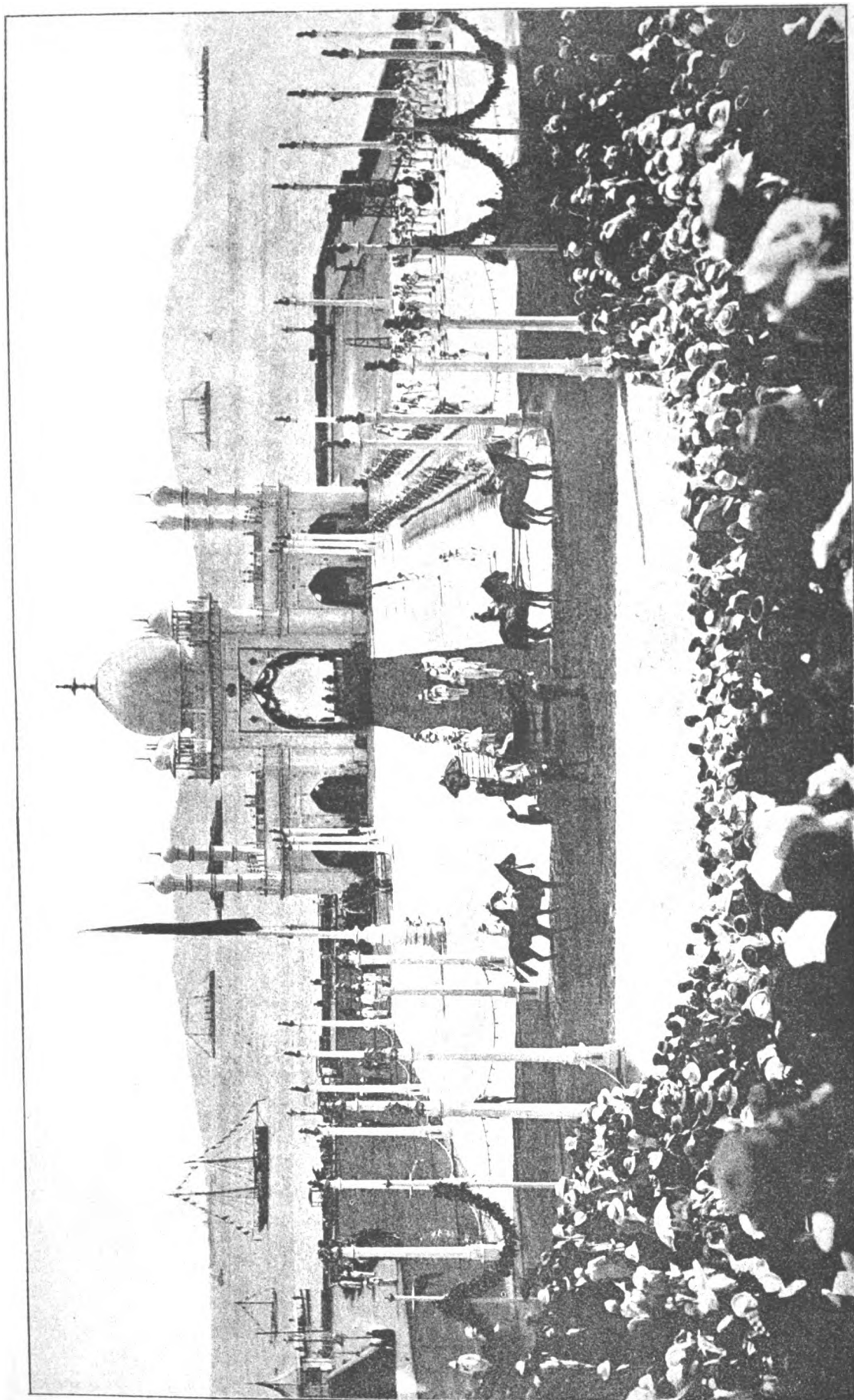
DALY COLLEGE, INDORE.

Col. SIR SWINTON JACOB, K.C.I.E., Architect.

INK-PHOTO: SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.



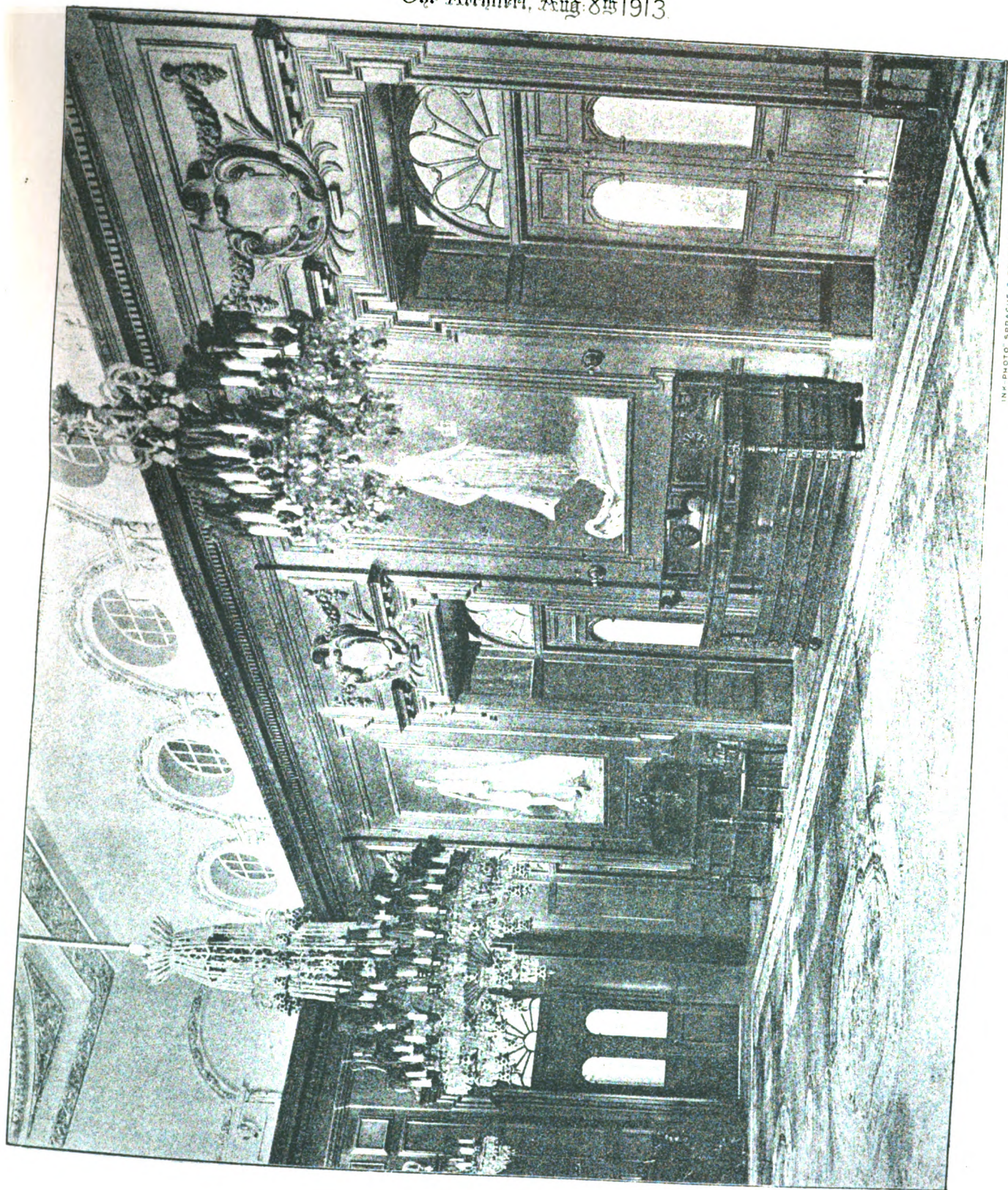
DAILY COLLECTOR, INDORE
MR. WINTON JACOB, INDORE



"PA-PROT" SPRACUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

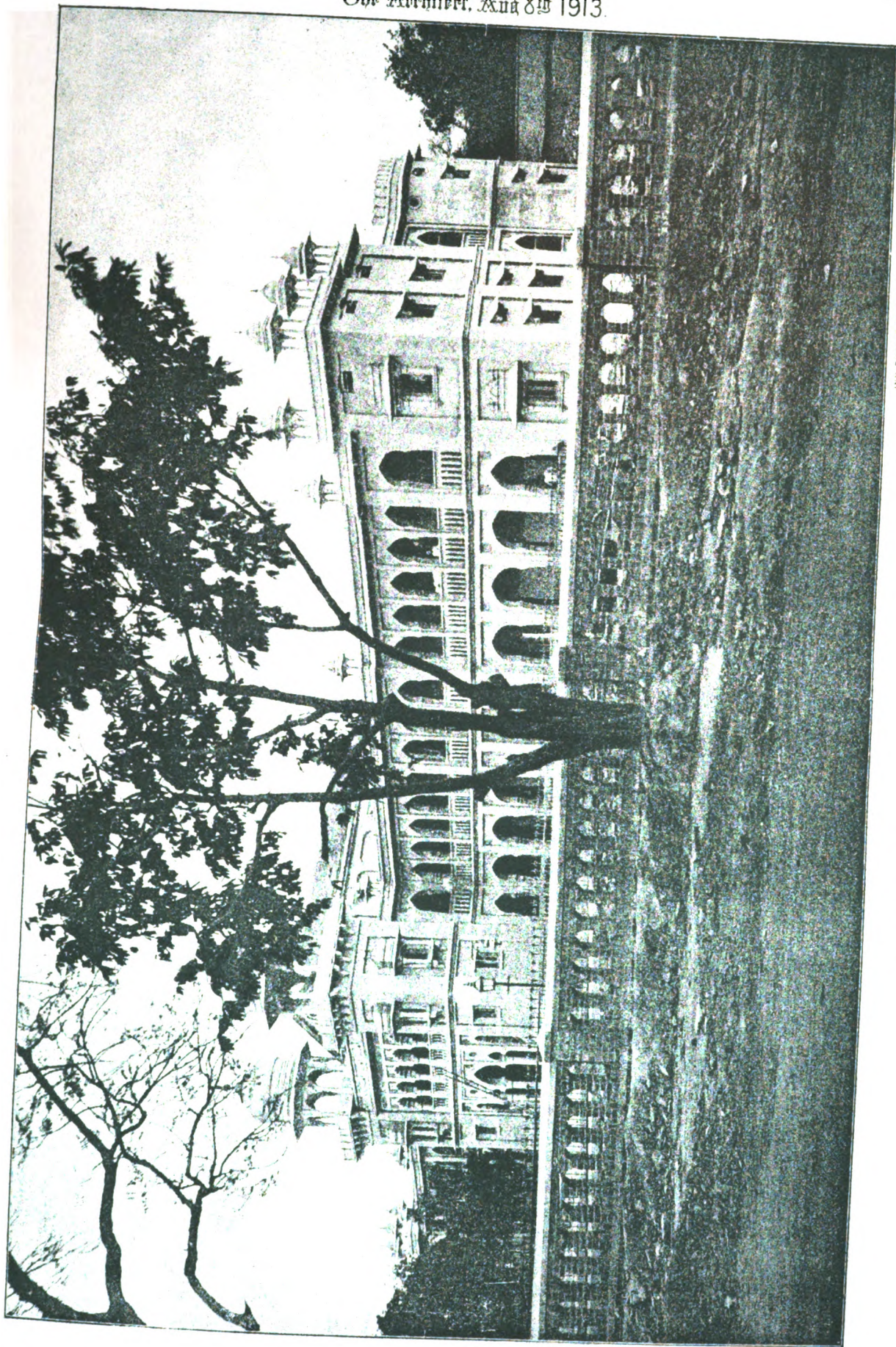
TEMPORARY RECEPTION PAVILION, APOLLO BUNDER, BOMBAY.
MR. G. WITTET, Architect

The Architect, Aug. 8th 1913.



DINING ROOM, GOVT. HOUSE, POONA.
Mr. G. WITTET, Architect.

INX PHOTO: SPRAGUE & CO. LTD 69 & 70, DEAN STREET, SOHO, W.

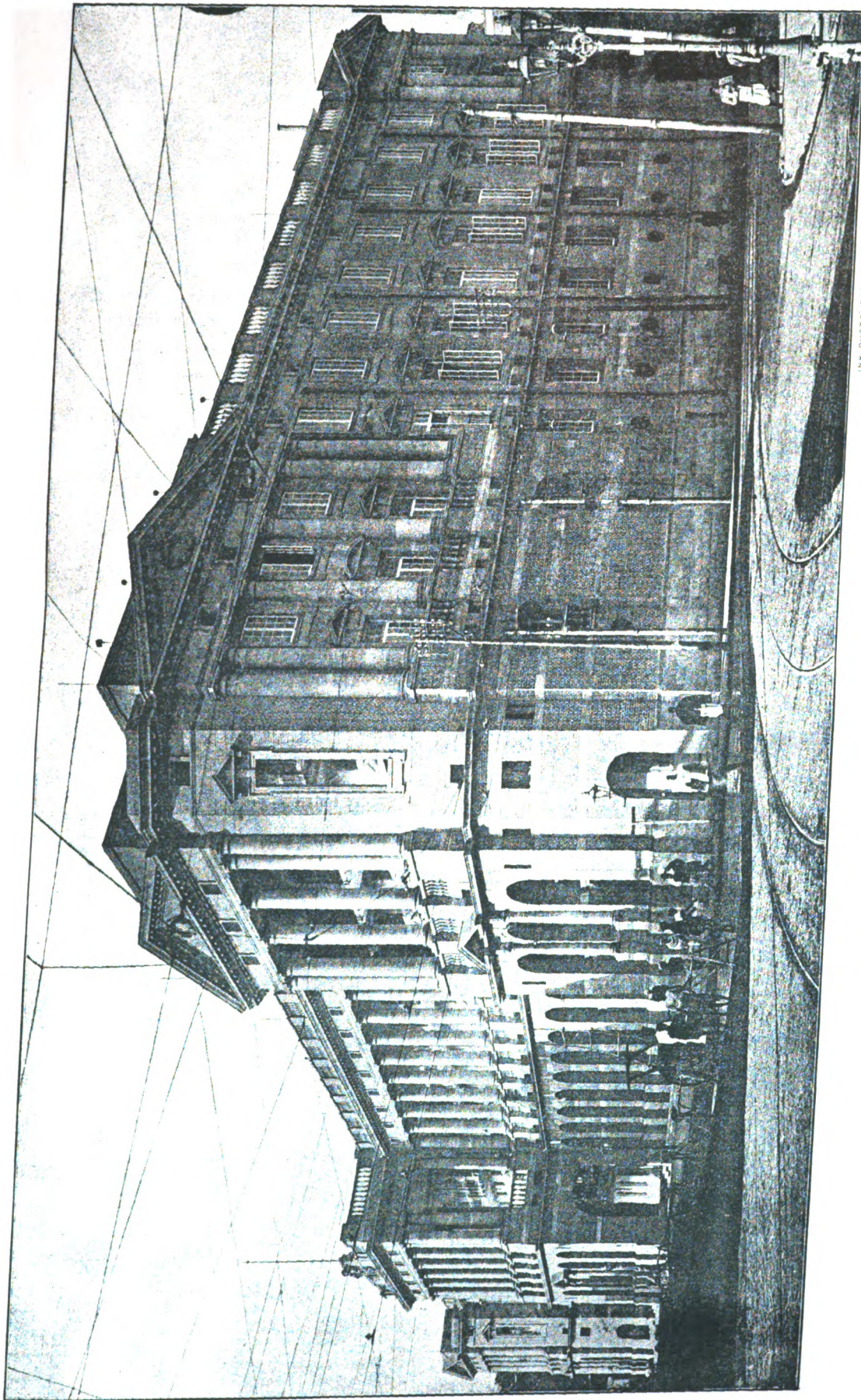


INK PHOTO SPRAGUE & CO. L^{td} 69 & 70, DEAN STREET, SOHO, W.

MUIR COLLEGE, ALLAHABAD: NEW BOARDING HOUSE.
Mr. F. O. OERTEL, F.R.I.B.A., Architect



The Architect, Aug. 8th 1913.



INK PHOTO SPRAGUE & CO. LTD. 68 & 70, DEAN STREET, SOHO, W.

NEW SECRETARIAT, COUNCIL HOUSE STREET, CALCUTTA.
Mr. JAMES RANSOME, F.R.I.B.A., and Mr. JOHN BEGG, F.R.I.B.A., Architects



MODERN EUROPEAN ARCHITECTURE.
FRANCE.



DETAIL OF RESIDENTIAL FLATS, AVENUE ELISEE-RECLUS, PARIS.—Mons. VIMONT, Architect.
[From *La Construction Moderne*.]

with tiger lilies. What can we say of Miss Mary Robinson's raised oil-paintings? Perhaps the less the better. And we will make mention of Mr. Phelan Gibbs, to whose "Huit Nus" let us give but a parting glance; personally we should prefer (as in the old nursery rhyme

of the little nigger boys) when they have all vanished. And Miss H. Saunders' "The Oast House" is very poor work and is cardboardy in effect. Miss Hall's oil-medium architectural studies, too, are harsh and unsympathetic.

It is a pleasant change to regard the late Victorian



Stained Glass Windows & Leaded Glazing

Specially designed in old
Colourings, to include
Armorial Bearings, &c.,
if desired.

Estimates and designs
submitted free for all
kinds of work, together
with testimonials show-
ing that work of highest
grade may be relied
upon.

Andrew Stoddart

The Studio, 15 Long Row,
Telephone: No. 261 Y. Nottingham.

(2)



In the Summer Time

smoky chimneys are not much
in evidence—but it is the best
time to fix Sankey's Down-
Draught Preventing Pot. This
will stop the trouble when the
cold and windy weather returns.

Have you had our Booklet on
Down-Draught? You will find
it interesting.

J. H. Sankey & Son,

HEAD OFFICE: Ltd.

EST. 1857.

Essex Wharf, Canning Town, London, E.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

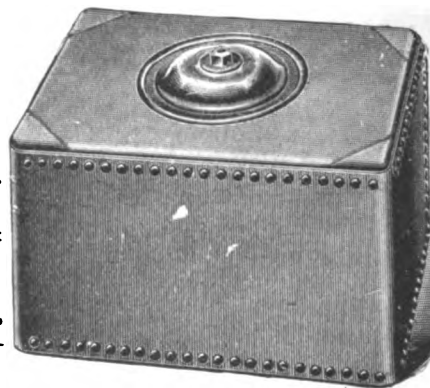
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



**IRON KECS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**

THE WALL-PAPER MANUFACTURERS LTD. "Relief Decorations."

**ANAGLYPTA &
SALAMANDER**

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2781 Gerrard.

Telegrams {"Anaglypta, London."
"Anaglypta, Darwen."}

**LINCRUSTA-WALTON,
CAMÉOID & CORDELOVA**

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 8769 Gerrard.

Telegrams: "Lincrusta-Walton, London."

LIGNOMUR

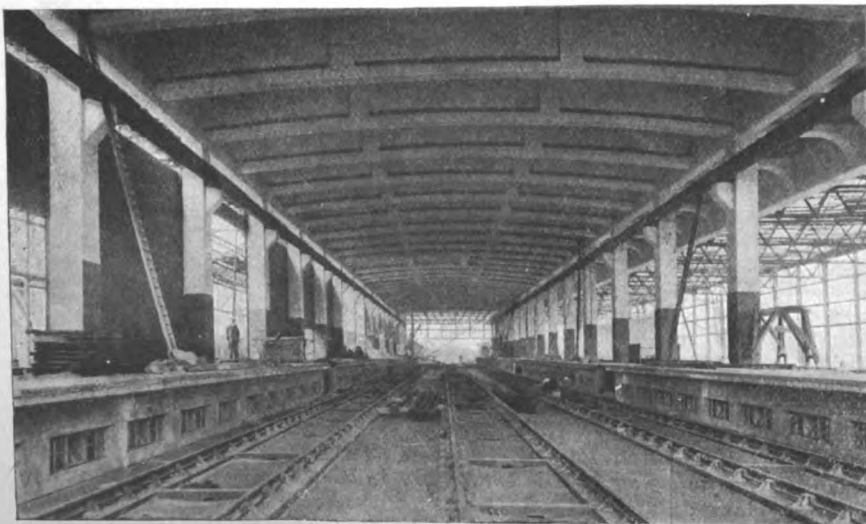
Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East.

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY-LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all
classes of buildings.

They are **FIREPROOF**,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use
in all parts of the world.

Arthur L. Gibson & Co.,

Radnor Works,
Strawberry Vale,

TWICKENHAM.

MANCHESTER:

33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:

79 West Regent Street.

manner of Mr. W. Hetherington-Bromilow in "Colinton Dell," "From the Woods," and "Shades of Evening." Miss Pattie Mayor exhibits a well-painted "Study of a Young Girl," and as much may be said for Miss Rankin's "Study of a Head."

Mr. Charles Ginner designates himself a neo-realist; what does it matter? That which we call a post-impressionist by any other name is just as objectionable.

Miss Phyllis Emmerson's poster-cartoons are good, knowledgeable work, and Miss Heaps' kittens are charmingly sympathetic. And Mr. C. S. John's "The Fall of Man"? There is no quarrel to be found here with the technique or the composition, but the conception is an outrage against the unformulated poem of Holy Writ, poetically formulated by Milton and accepted by mankind, if only as a graceful legend. Mr. C. B. James' "The Banshee" deserves appreciative notice for its imaginative hold upon the spectator. Mr. Schwaben has a most attractive work in "Sunset on the Roads"; the colouring is harmonious, but would bear slightly toning down. But this is preferable to under-toning, such as we notice in Mr. T. C. Bell's portrait of "Lady Margaret McKenzie," which is in all other respects very good work. The criticism offered upon Mr. Schwaben's exhibit is applicable also to Mr. R. Walters' "In the Valley of the Usk."

Mr. Jack Cotes' pen drawings of architecture are too thin and the buildings poorly sketched, but his illustrations for Oscar Wilde's "Charmides" are very decorative.

We recall from the mists of childhood an old conundrum about "Adam and Eve and Pinch-me-tight"; Mr. E. Forbes-Robertson, in No. 1,051 (Dessins) introduces all three characters apparently; or perhaps what we take for an octopus is meant merely for the trunk of a tree. Mr. A. W. Dow has a good pencil drawing of Hesdin (France), and Mr. T. E. Harrison shows a knowledge of "leading" in his cartoon for stained glass; this knowledge is conspicuously lacking in Mr. F. Schwager's window of "Christ Blessing Children," where the modelling of the figures is quite destroyed by the "leads." Messrs. J. R. Taylor's and L. Hardy's etchings are distinctly good in their technique, and Mr. W. A. Martin's crayon studies are some of the works that strive to redeem a tedious exhibition. As much, too, may be said for Mr. Morris Harding's animal studies.

Amongst the modelling and sculpture there was not much that attracted us. Mr. J. Epstein has a charming little "Head of a Babe," and Mrs. Dick's "Studies of an old Dutch Woman, Volendam," is an excellent exhibit and full of esprit. We shall have to conclude with appreciative notice of Miss Dowson's plaster modelling, "Exaltavit Humiles," which is nicely executed in the pure mediæval spirit and is quite Italian in feeling; and Mr. John Cassidy's prettily modelled head in statuary marble, which he entitles "Queen of the May," compels attention.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Gerrard's Cross.—Police Station.

CHESHIRE.

Ellesmere Port.—Welsh Church, Westminster Road (accommodation for 250 sittings). Mr. L. Wynne Williams, architect, 410 Park Road North, Birkenhead. Messrs. Cartwright Brothers, contractors, Little Sutton.

Marple.—National Sanatorium, Nab Top Farm, for the Salford Corporation (accommodation for 100 patients). £15,000.

CORNWALL.

Hayle.—Hospital for the Daughters of the Cross (accommodation for 20 patients). £1,800.

CUMBERLAND.

Keswick.—Theatre. Mr. P. M. Hope (of Appleby), architect.

DERBYSHIRE.

Derby.—Two branch Libraries (£10,000).

DEVON.

Buckfastleigh.—Workmen's dwellings, Millman's Meadows. Council surveyor.

Devonport.—Municipal Offices and Guildhall (£100,000).

Exeter.—Twelve cottage dwellings, Commercial Road (£2,100). City surveyor.

DURHAM.

Bishop Auckland.—Grammar School (accommodation for 250 to 300 boys). £13,300.

Chester-le-Street.—106 workmen's houses.

Darlington.—Elementary school, Barnard Station.

Durham.—School: Boarding House (for 40 scholars). Mr. W. H. Wood, F.R.I.B.A., architect, 47 North Bailey.

Johnston Council School: extensions (£5,260).

Easington Lane.—Council School for 700 places.

Eppleton Colliery.—Council School for 1,100 places (£13,440).

Fishburn.—Council School for 428 places (£5,100).

Heathery Cleugh.—Church for 750 sittings.

Hetton-le-Hole.—Council School: re-modelling (£3,000).

Marsden Colliery.—Council School for 400 places (£6,000).

Newbottle.—Council School: re-modelling (£3,400).

Sunderland.—Bishopwearmouth Parish Hall, Low Road (accommodation for 600 sittings). £3,000. Messrs. W. & T. R. Milburn, F.R.I.B.A., architects, 19 Fawcett Street. Messrs. J. Huntley & Son, contractors, Vilette Joinery Works.

Council School, Shaleross Road (£7,000).

Trimdon Grange.—Twenty-five working-class dwellings (£5,500).

ESSEX.

Brentwood.—House, Priests Lane (£1,400). Messrs. C. & W. H. Pertwee, architects, 19 New London Road, Chelmsford. Messrs. Choat & Son, contractors, Mildmay Road, Chelmsford.

Little Thurrock.—Hospital: additions (£3,200). Mr. C. M. Shiner, A.R.I.B.A., architect, High Street, Grays.

HAMPSHIRE.

Eastleigh.—Technical School and Pupil Teachers' Centre.

LANCASHIRE.

Elswick.—Smallpox (emergency) hospital, for the Fylde, Preston, and Garstang Joint Hospital Board.

Heath Charnock.—Sanatorium for thirty beds (£4,500).

Manchester.—Chapel, Higher Ardwick (£3,000), for the Welsh Calvinistic Methodists.

Orrell.—Sanatorium for sixty beds (£6,000).

LINCOLNSHIRE.

Boston.—County Council Offices, Church Close: extension (£560).

Castle Bytham.—Workmen's dwellings (£1,450).

Haconby.—Workmen's dwellings (£730).

MIDDLESEX.

Hornsey.—Fire Station, Fortis Green.

Tuberculosis Hospital.

Kingston-on-Thames.—Council School, Bonner Hill Road: enlargement (£3,000).

Staines.—Cottage Hospital, corner of Kingston and Worple Roads (£2,000). Mr. Leslie Moore, A.R.I.B.A., architect, 3 Raymond Buildings, Gray's Inn, London. Messrs. Beauchamp, contractors, Victoria Street, Englefield Green.

NORTHAMPTONSHIRE.

Kettering.—Public Baths, off Bath Road: extensions.

NOTTINGHAMSHIRE.

Brinsley.—Council School.

Carlton.—Upper standard school for 400 places (£7,600).

Forest Town.—Mixed school: extension for infants' department for 250 places (£2,750).

Kingston-on-Soar.—The Agricultural and Dairy College, Sutton Bonington: extensions.

Rampton.—Council School for 156 places (£2,270).

Sutton-in-Ashfield.—Council School for 700 places, Huthwaite Road (£9,200).

Worksop.—Council School for 320 places, Stanley Street (£4,350).

STAFFORDSHIRE.

Abbots Bromley.—St. Anne's College: extension (£9,000).

Messrs. Lowe & Sons, contractors, Curzon Street, Burton-on-Trent.

Cannock.—Wesleyan Sunday schools (£1,500). Mr. H. Lavender, architect, Bridge Street, Walsall. Mr. T. Mason, contractor, Station Street, Hednesford.

SPECIFY**CLARIDGE'S****PYRIMONT-SEYSSEL
ASPHALTE****FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.****CLARIDGE'S PATENT ASPHALTE CO., Ltd.**
21 SURREY STREET, STRAND, W.C.TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."**Orr's Zinc White Limited**

Telegram: "Orr, Widnes."

WIDNES, LANCs.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.****ZINC SULPHIDE WHITE (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.****"SILOX," a special White for use in place of White
Lead.**

ENQUIRIES SOLICITED.

ENGLAND—continued.

STAFFORDSHIRE—continued.

Bucknall.—Hospital: two-storey pavilion for forty patients (£7,000).

Croxtall.—Council School.

Stoke-on-Trent.—Council School, Keelings and Queen's Roads.

Wolverhampton.—General Hospital: pathological and bacteriological department (£1,300).
Technical School.

WARWICKSHIRE.

Birmingham.—Working-men's Hostel. Messrs. Scott & Weedon, architects, 115 Colmore Row.

Children's Hospital, Ladywood Road.

Hospital, Wotton: extension.

Picture Theatre, Hill and John Bright Streets, for Mr. J. E. H. Monypenny.

Coventry.—Public Baths: extension (£15,400).

WORCESTERSHIRE.

Hagley Green.—Stourbridge Hospital: tuberculosis pavilion (£1,750).

Stourport.—Police Station.

YORKSHIRE.

Brodsworth.—Parish Church: restoration (£2,000). Mr. J. N. Cowper, architect, London.

Thorner.—Council School for 120 places (£1,560).

WALES.

Bargoed.—Capel Hotel (£4,250). Mr. S. Williams, architect, Borough Chambers, Wharton Street, Cardiff. Mr. J. F. Howells, contractor; Station Yard, Caerphilly.

Cardiff.—Fire Station, Westgate Street. Messrs. Moodie & Harris (A.R.I.B.A.), architects, 8 New Square, Lincoln's Inn, London (£16,000).

Harlech.—London City and Midland Bank premises.

Merthyr.—One hundred and seventy-five garden-city houses, Gellifaelog.

Prestatyn.—Public Slaughter-houses.

Workmen's dwellings (£500).

Sketty (near).—Tuberculosis hospital for Swansea.

Swansea.—Isolation Hospital, Fairwood, for the County Council (£6,000).

Talybont (near Barmouth).—Tuberculosis Sanatorium for twenty-four patients (King Edward VII. Memorial).

Wrexham.—Workhouse: alterations.

SCOTLAND.

Aberdour.—Y.M.C.A. Institute.

Auchinleck.—136 miners' houses, for Messrs. W. Baird & Co.

Edinburgh.—Cannon Ball House: re-construction, for the School Board.

Glasgow.—Public Hall, Bothwell Street (accommodation for over 40,000 people). £40,000 to £50,000. Mr. J. Miller, F.R.I.B.A., architect, 15 Blythswood Square.

Germiston Iron Works, Petershill Road: additions, for Messrs. A. & J. Main Co., Ltd.

Joiner's workshop, Crow Road, Temple. Mr. J. Taylor, builder, Temple View, Anniesland.

Buildings, Summerton Road, Govan, for Messrs. Harland & Wolff, Ltd.

Foundry, 50 Helen Street, Govan: additions for Messrs. R. Potter & Sons.

Warehouse and Offices, Bishop Street, for Messrs. R. Morison & Co.

Two double villas, Kilmarnock Road. Mr. R. Henderson, architect, 121 St. Vincent Street.

Kirkcaldy.—Hospital: extension.

Lauder.—Woodheads Farm Steading: re-construction of buildings.

Noranside.—Sanatorium, for the Forfar County Council.

Paisley.—Works, Laighpark: extensions for Messrs. T. White & Sons, Ltd.

Port Glasgow.—Passenger (railway) station.

Rosyth.—Laboratory, Crombie, for H.M. Admiralty (£40,000).

St. Andrews.—Martyrs' U.F. Church, North Street, also Church Hall (£8,500).

IRELAND.

Drogheda.—Technical School.

Dublin.—Wesley College, Stephen's Green: addition. Mr. G. F. Beckett, M.R.I.A.I., 97 Stephen's Green.

Kilmaidan (Co. Waterford).—Parochial House. Messrs. Moore, Keefe & Robinson, architects, 1 and 2 Tester Place, Dublin.

Moycullen.—Dispensary and medical officer's residence, for the Galway Board of Guardians. Mr. A. MacDonald, M.R.I.A.I., architect, Francis Street, Galway.

Pembroke.—Artisans' dwellings; the Duignan site.

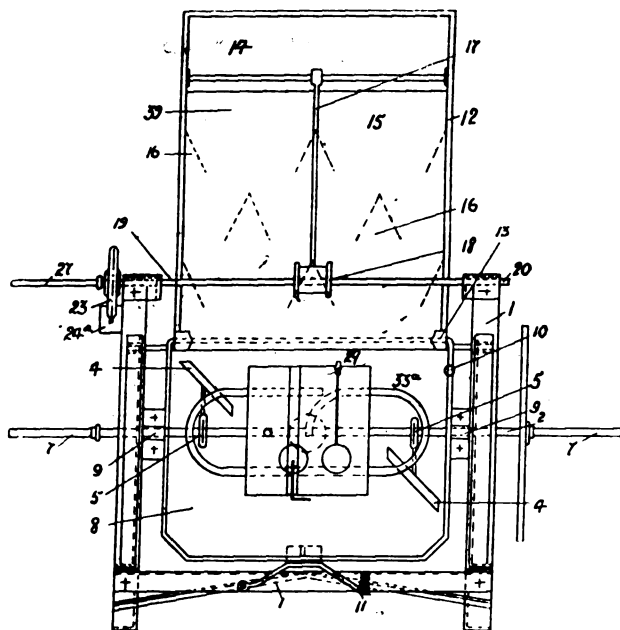
Straide.—Church. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street, Dublin.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 14,991. June 27, 1912.—Machines for mixing concrete and similar substances. F. W. Turner, 8 Fountain Terrace, West Hartlepool, Durham, architect and surveyor. This invention relates to a machine or apparatus for mixing concrete, and has for its object an improved machine for mixing, measuring, supply, and discharge of same, and the addition of measured quantities of liquid. Fig. 1 is a plan, and Fig. 2 is a side elevation. The machine consists of a frame, 1, on which is mounted a shaft, 2, in bearings, 3. Attached to shaft 2 are beaters, 4, secured by bolts through slots, 5, in the shanks of the beaters to allow of their adjustment in the pan, 8. The shaft 2 is revolved by wheel and handles, 7, or pulleys and belt. The pan, 8, in which the final mixing takes place in cross section forms the segment of a circle, so that the beaters, 4, in revolving just clear same. The pan, 8, is mounted in shaft 2 by bearings, 9, so that it may be revolved about the shaft, 2, through such an arc as will



allow of it being emptied. The pan, 8, is revolved by the lever, 10, for the purpose of emptying same when the mixing of the concrete is completed, the shaft, 2, along with the beaters, 4, being revolved to clear out the pan, 8. When the mixing in the pan, 8, is in progress, it is kept in position by the spring catch and lever, 11. The measuring, loading, and dry mixing of the concrete are performed by the combined measuring box and dry-mixing shute, 12, which is mounted to frame, 1, by hinged points, 13. It is raised to such an altitude as will cause the contents of the measuring box, 14, to gravitate down shute, 15, past baffle plates, 16, and delivered into pan, 8, by means of rope or chain, 17, wound on pulley, 18, on shaft, 19, carried in bearings, 20, supported on extension, 21, of frame, 1. The shaft, 19, is actuated by sprocket wheels, 22 and 23, and pitch chain, 24, by means of shaft, 25, mounted in bearing, 26, secured to frame, 1. The shaft, 25, is actuated by handle, 27. A counterpoise balance weight, 24a, is secured to the pitch chain, 24, to balance the weight of measuring box, shute, and contents. So that the concrete or similar substances which are being mixed may have a regular or measured quantity of liquid added thereto, a tank, 28, is mounted over pan, 8, and is supplied with liquid through ball valve, 29. A float, 30, with indicator rod, 31, rises and falls in guide, 32. The scale is marked on tank, 28. A spray pipe, 33a, is mounted over pan, 8, supplied from tank, 28, controlled by a cock operated by a lever,

RUBEROID SARKING FELT

A Sarking which in itself is a waterproof covering to a building, and which will prevent damage to ceilings and decorations from roof leakage. Inodorous, non-conducting, and permanently efficient. Samples to test and full particulars will be sent on application.

THE RUBEROID CO. Ltd.

MANUFACTURERS,

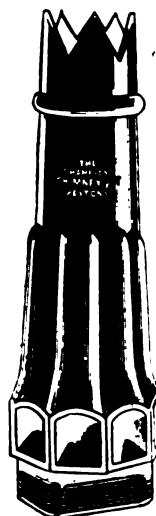
22 Waterloo House, Knightbridge Street, London, E.C.

2 Foith Street,
NEWCASTLE-ON-TYNE.

37 Assembly Street,
LEITH.

1 Aston's Place,
DUBLIN.

JAMES GIBBONS
Designer and Manufacturer
of Door Furniture, Locks, Art,
Metal Work, Wrought Iron and
Steel Casements, Electric Fittings,
Gates, Railing, Covered Ways, Lift
Enclosures, Grilles, etc., etc.
ST. JOHN'S WORKS, WOLVERHAMPTON.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the 'Champion' has been specified by LEADING ARCHITECTS, and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

"Exmet" Brickwork Reinforcement

A NEW TYPE OF EXPANDED METAL
FOR REINFORCING BRICKWORK, Etc.

IMPORTANT NOTICE



Statements have been published implying that the use of "EXMET" for brickwork reinforcement constitutes an infringement of certain Patents, controlled by other manufacturers, and threats of actions for infringement against users of "EXMET" for brickwork reinforcement have been made.

The Expanded Metal Company denies any such implication, but the statements have been too vague, as yet, to admit of any action being taken to stop them.

The Company undertakes to protect its customers who use "EXMET" or any of its products for brickwork reinforcement, by indemnity and guarantee against all damages for any actions for infringement.

THE EXPANDED METAL COMPANY Limited,

Patentees and Manufacturers of EXPANDED METAL.

HEAD OFFICE

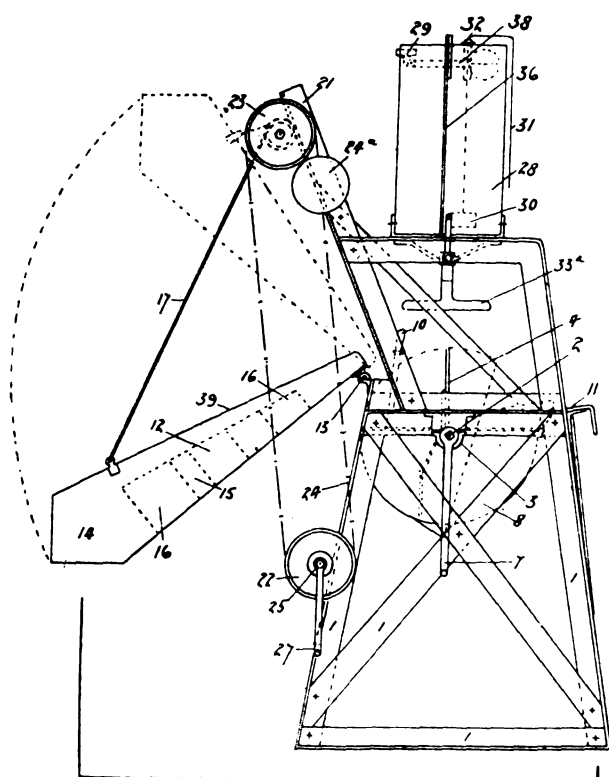
(to which address enquiries should be sent):
York Mansion, York Street, Westminster,
London, S.W. Telephones:—
"Distend, Vic., London." Gerrard 819; Victoria 1514.

WORKS

(to which address orders should be sent):
Stranton Works, West Hartlepool.
Telegrams:— Telephone:—
"Expansion, West Hartlepool." 94 West Hartlepool (2 lines).

April, 1913

to which is connected a rod, 36, which operates a lever of such shape that it passes underneath the lever, 38, of ball valve, 29, so that when the lever, 35, is used to open the cock, 34,



the lever of the ball valve is raised and kept in position to prevent the inflow of liquid into tank, 28, through the ball valve, 29, during the time the liquid is being discharged from the tank, 28, through the spray pipe, 33a, into pan 8. Thus the amount of liquid added to the materials being mixed in the pan, 8, can be measured by the drop of the indicator attached to the float, 30, as shown by the scale, 33. The dry-mixing shute, 12, is provided with a cover, 39, which extends full length of same except over measuring-box portion.

PATENT SPECIFICATIONS PUBLISHED JULY 31, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House Temple Bar, London.

- No. 15,705. July 5, 1912.—Arthur and William Goulding, 49 Burton Street, Notts. Flushing apparatus for water closets.
- 15,873. July 8, 1912.—Henry Reinhard, Ellerslie, Chester Road, Erdington, Birmingham, and Tubes, Ltd., Rocky Lane, Aston, Birmingham. Seamless pipes, hollow metallic bodies, and the like.
- 15,877. July 8, 1912.—Frederick Baker, 2 St. Paul's Terrace, Wolverhampton. Locks.
- 16,017. Jan. 8, 1912.—Ernest Wass, 31 Grafton Square, Old Town, Clapham, S.W., and G. V. Upton, 36a Old Town, Clapham, S.W. Disinfecting apparatus for use in connection with cisterns for flushing apparatus.
- 16,285. July 12, 1912.—The Birmingham Railway Carriage and Waggon Co., Ltd., of Smethwick, and E. W. Box, 164a Antrobus Road, Handsworth, Staffs. Locks and keepers for sliding doors.
- 16,595. July 16, 1912.—E. P. Wells, 94 Larkhall Rise, Clapham, S.W. Construction of reinforced concrete walls, floors, beams, and like structures.
- 16,787. July 18, 1912.—Dated under International Convention Sept. 30, 1911. Firm Vereinigte Chemische Fabriken, Landau, Kreidl, Heller & Co., 5-7 Sebastian Kohl-gasse, Vienna XVI. Manufacture of white enamel.
- 17,578. July 29, 1912.—D. W. Powers, Edgewood, and F. H. Tebbe, Weed, Siskiyou, California. Stove dampers.
- 18,017. Aug. 3, 1912.—H. H. Grundy, 393a City Road, E.C. Electric heaters.
- 29,893. Dec. 28, 1912.—W. H. Brown, 12 Severns Road, St. John's Hill, Battersea. Automatic control gas and water valves.
- 487. Jan. 7, 1913.—Dated under International Convention Jan. 10, 1912.—V. G. Crittall, the New House, Chelms-ford. Window sashes.

- 23,061. Oct. 9, 1912.—Fritz Heldt, 28 Worthstr, Essen-R., Germany. Dismountable shelves.
- 23,999. Oct. 21, 1912.—Thos. Hughes and W. P. Hughes, Rhydymwyn, near Mold, North Wales. Windows.
- 29,941. Dec. 30, 1912.—A. H. Dupeyron, 22 rue des Montibœufs, Paris. Means for hinging or hanging doors.
- 21,605. Sept. 23, 1912.—John Pethick, "Korner," Bude, Cornwall. Sash windows.
- 15,512. July 3, 1912.—Wilberforce Cobbett, 89 Victoria Street, Fareham, Hants. Means and apparatus for the automatic discharge of sewage and liquids from tanks, sewers, or other receptacles.
- 15,570. July 3, 1912.—G. I. Kick, 11 rue Darcet, Paris. Combination locks.
- 15,671. July 4, 1912.—H. T. Fenlon, 8 Tudor Street, Whitefriars, London. Gas cocks.
- 16,600. July 16, 1912.—James Bingham, New Hampshire, U.S.A. Stanchions.
- 18,776. Aug. 16, 1912.—William Swallow, 242 Turf Lane, Royton, Oldham. Flame spreader for painters' burning-off lamp.
- 19,043. Aug. 20, 1912.—T. R. Hickman, 15 Saint Andrews Place, Gartcosh, Lanarkshire. Apparatus for shearing, polishing, trimming, corrugating, beading, flanging and bending, or otherwise treating sheet metal.
- 19,244. Aug. 22, 1912.—Adolf Hille, 151b Hutungstr, Neugersdorf, Germany. Stoves.
- 19,528. Aug. 26, 1912.—G. G. Mathwin, 3 Prospect Terrace, North Shields, and G. G. Mathwin, junr., 172 Canning Street, Newcastle-on-Tyne. Hooks for load-lifting chains or ropes.
- 20,035. Sept. 3, 1912.—F. G. S. Price, "Nariva," Anniesland Road, Scotstounhill, Glasgow. Method of supporting and jointing in a watertight manner plates and sheets of material used for roofing and similar purposes.
- 21,124. Sept. 17, 1912.—H. A. Squire, Avondale, Blox-wich. Locks.
- 23,103. Oct. 10, 1912.—R. F. Pochin & H. S. Pochin, St. Margaret's Ironworks, Watling Street, Leicester. Appliances for lifting and conveying stones, &c.
- 24,907. Oct. 31, 1912.—William Pickup, Cobden Street, Pendleton, Manchester. Machines for grinding colours, paints, and the like.
- 25,258. Nov. 4, 1912.—Frank Barlow, 6 Medina Road, Finsbury Park, N. Locking device for gates or doors of electrically controlled lifts.
- 25,749. Nov. 9, 1912.—James Fraser, Lovat Bank, Milton Road, Windygates, Fife. Draught excluder for doors.
- 26,037. Nov. 13, 1912.—G. E. Mortley, 14 Nelson Road, Tunbridge Wells. Petrol gas generating apparatus.
- 26,982. Nov. 23.—J. S. Kirkpatrick, Invercargill, New Zealand. Gate or door latches.
- 27,759. Dec. 2, 1912.—G. E. Heyl and T. T. Baker, Garrick House, Southampton Street, Strand, W.C. Means for disengaging the locking devices of a door.
- 29,590. Dec. 23, 1912.—Dated under International Convention Feb. 15, 1912.—Hermann Frank, 20 George Bahr Strasse, Dresden, Saxony. Radiators for heating buildings.
- 530. Jan. 8, 1913.—Gordon Smith, 68 Forest Lane, Stratford, E. Means for automatically controlling the gas supply to gas stoves.
- 2,774. Feb. 3, 1913.—Arthur Durand, 90 Avenue Pereire, Asnieres (Seine), France. Safety locks.
- 4,504. Feb. 21, 1913.—Dated under International Convention Feb. 26, 1912. Paul Milon, 4 rue de la Republique, Saint Mande, Seine, France. Hydro gas controller for water heaters and like apparatus.
- 5,006. Feb. 27, 1913. T. J. Stephens, 45 Molineax Street, Derby. Rotary cutter wood-working machine.
- 5,323. March 3, 1913.—Dated under International Convention March 2, 1912. Henry Goldwater, Aberdeen, Chelalis, Washington. T-squares.
- 7,588. March 31, 1913.—Dated under International Convention Oct. 5, 1912. August Abel, 1 Blanchardstr, Frankfurt-on-Main. Draught excluder or screen for windows.
- 9,241. April 19, 1913.—Edward Kersey, 950 Dakin Street, Chicago. Flushing apparatus for water closets.
- 10,212. April 30, 1913.—Angelo & C. Q. Bersano, Biella, Novaro, Italy. Proportional drawing instruments.
- 27,191. Nov. 26, 1912. G. W. Morgan, 116 King Street West, Hamilton, Wentworth, Ontario. Stoves.
- 7,288. March 27, 1913.—Eugene Garretson, 427 Fargo Avenue, Buffalo, Erie, U.S.A. Automatic fire alarm systems.

Any of the above specifications may be obtained from J. D. Roots & Co.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarsold, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres.
i.e., Wood-Milne Steelrubber—other makes to order.*

GOLD MEDAL

"BELL" GRATES

are in use all the world over, and giving the greatest satisfaction everywhere.

Illustrated Catalogue on application.



**Bell Range
& Foundry
Co.,**

16 Berners
Street,
London, W.,
and
Northampton.



FACTORY LIGHTING

Efficient factory lighting pays for itself in increased output and decreased costs.

Scientific illumination means satisfaction to architect, owner, and workers.

Our Illuminating Engineers are ready to advise in all kinds of mill and factory lighting.

Write for free Booklets.

**THE BRITISH THOMSON-HOUSTON
CO., Ltd.,**
Mazda House, 77 Upper Thames Street,
London, E.C.

— THE — Universal Concrete & Construction Co. Ltd.

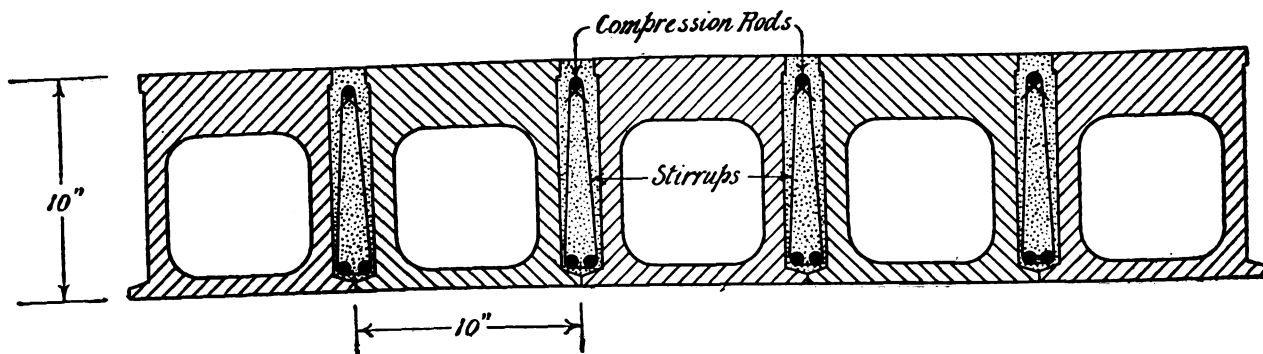
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**

**MINIMUM
COST.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without **Beams** projecting below the **Ceilings**, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
Architectural Work in India	145
Notes and Comments	146
British Scholarships at Rome.	147
Streets on Old Oak Estate, Hammersmith	148
Competition News	148
Illustrations :—	
Architectural Work in India	148
The Royal Archaeological Institute	149
Villa Burgisser, Florence (illustration)	153
Villa near Trebizonde (illustration)	155
The Architecture of Railway Stations	156
Restrictive Building Covenants	157
The British Museum	158
Building Progress in the Provinces	159

Alfred East Art Gallery, Kettering (illustrated)	PAGE 160
British Patent Specifications	161
Correspondence	163

FORTHCOMING EVENTS.

Saturday, August 16.

Upper Norwood Athenæum: Visit to Carshalton and Beddington.

Saturday, August 23.

Northern Architectural Association: Students' Sketching Club visit.

Wednesday, August 27.

Institute of Sanitary Engineers: Visit to Marconi's Wireless Telegraph Company's Works at Chelmsford.

ARCHITECTURAL WORK IN INDIA.—II.

WE this week give a further series of examples, reproduced from the official Annual Report on Architectural Work in India, illustrating recent buildings by Governmental architects. The Medical College at Lucknow, known as "The King George's Medical College," has been built at the suggestion of the Oudh Taluqdars in commemoration of the visit to Lucknow of the Prince and Princess of Wales in 1905. The cost has been met by private subscription, amounting to some 13 lakhs of rupees. The site is known as the "Shah Mina," and the foundation-stone was laid by the King (then Prince of Wales) in 1905. The design is by Colonel Sir Swinton Jacob, K.C.I.E. Provision is made for the admission of 200 students. The area of the main building at ground level is 19,729 square feet, and its cost has been approximately 278,500 rupees—i.e., 14 rupees per square foot nearly. The exterior of the building is plastered, with stone dressings. The lavatories are fitted with modern sanitary fittings by Doulton & Co. connected with the municipal water supply and the city sewage system. The College has its own electrical installation and is entirely lit by electricity and fitted with electric fans. The Medico-Legal Mortuary is in keeping with the rest of the College and contains a large post-mortem room 32 feet by 26 feet and the mortuary room 28 feet by 15 feet. Lockers with wire gauze doors are provided for storing dead bodies, while for identification purposes certain of these have glass doors. The post-mortem room accommodates thirty students in a gallery. The pathological block has an area of about 16,500 square feet and cost about 181,473 rupees, or 11 rupees per square foot. It contains a large lecture theatre (44 feet by 35 feet), professors' private rooms, physiological laboratory, histology room, private research room, rooms for media, animals, bacteriology, and pathology, and a museum 40½ feet by 40 feet. Besides these there are other smaller rooms, such as preparation, balance, galvanometer, and photography rooms, assistants' rooms and common rooms, sterilising rooms, &c. The whole is fitted in the most approved modern manner. The anatomy block is of the same type as the other buildings. It has cost about 108,313 rupees. It contains a theatre 44 feet by 35 feet and dissecting rooms (with museum gallery all round) 60 feet by 44 feet, besides lavatory, cloak rooms, macerating rooms, and domestic quarters. The dissecting room is 33 feet high and has a floor and dado (5 feet high) of white marble, all corners being rounded off, and contains ten dissecting tables. The macerating room floor is also of marble with a dado of glazed tiles. The doors in the building are enamelled white and are pro-

vided with wire gauze self-closing shutters. Flushing arrangements are provided, so that the floor can be flooded from a central hydrant.

The physics block of the Canning College, Lucknow, which we illustrate, is built of brick with brackets, chajjas, and finials on domes in cut stone. The floors are of 1½-inch chisel-dressed stone on 3-inch concrete throughout, and the roof is of jack-arches on rolled-steel joists. The haunches of the arches have been filled with concrete, and over this a 4½-inch layer of rammed earth, and 4½-inch concrete over all, the earth-filling being introduced for coolness. Doors and windows are of teak with brass fittings, and the frames are of sal-wood. The woodwork has been oiled, not varnished. The cost of the building (estimated) is 80,277 rupees.

The new Pavilion at Government House, Bombay, was erected from the designs of Mr. George Wittet to replace a temporary arrangement of erecting a marquee for balls and special occasions. It consists of a hall 75 feet by 40 feet with a servery and pantry at either end and a broad verandah and curved portico in front. The structure is of reinforced brickwork, rough-cast on the exterior, the cornices of cast concrete, and the curved ceiling of fibrous plaster. The interior is treated in ivory white and gold. The total cost was 47,850 rupees, exclusive of electric fittings; the cost of the structure was 4.4 annas per cubic foot, including electrical work 5.6 annas.

The new Council Chamber, Madras, is an extension of the Secretariat at Fort St. George and was designed by Mr. W. H. Nicholls. The columns which appear on the elevation are some of the historic black Palaveran stone pillars which were carried away by the French to Pondicherry, brought back by the British, and re-erected in the old Banqueting Hall in the Fort, which was demolished to make way for the new Council Chamber extension, in the building of which twenty of the old pillars have been used.

From the illustrations that we have published it will be evident that Government architects in India adopt for the basis of their designs both Renaissance detail, usually very well handled, and a more or less successful version of what is called the Saracenic order, which is intended to express an Oriental character. It is also evident that the architects in Government employ, like their *confrères* at home, are frequently fettered by inadequate means and restricted to a parsimonious utilitarianism in some of the buildings that they are called upon to design.

Another point that strikes us with considerable force is that the quality of design found in present-day Governmental architectural work in India is very largely

dependent on the individual ability of the architect entrusted with any particular building. There is nothing approaching a school, academic or otherwise, nor anything resembling an official system of design. The buildings of Renaissance design in India might as well have been erected in Europe, with the exception that there is a wider use of loggie and verandahs and a reduction in the size of window openings. It is clear that this is the result of the importation of architects from the governing country, who have become matured in the use of Renaissance detail as it is customarily employed here. Nor when these imported architects attempt the design of buildings in the "Saracenic" manner can they, for the most part, divest themselves of British methods of expression in mass and grouping on Renaissance lines by the use of emasculated forms of Oriental detail. In default of the traditional and hereditary craftsmanship of the native master builder, long and arduous study of Indian architecture would be necessary to give the imported British-trained architect any real facility in the handling of the methods of composition and the employment of detail of truly Indian character. This study is impossible for the architect employed by Government, for as soon as he lands he must at once take up his allotted routine of duty. Hence to a large extent the efforts of imported Britishers in "Saracenic" remind us of those of the Batty Langley and Strawberry Hill periods of "Gothick," neither correct in its archæology nor a living art in its method of expression.

It must be remembered, however, in extenuation, that the Public Works Department of India is at present in a state of transition. Architects are being drafted into the service, chosen for artistic qualifications in place of engineers, but the process of substitution is slow, and it must be some time yet ere architecture holds its rightful position in the Governmental scheme instead of being regarded as a by-product of engineering. In the meantime Mr. Begg, in his report, says on behalf of himself and his colleagues, "Our bitterest complaint is of the poor quality of the class of assistance we are given in the country, both in our drawing offices and on the works."

Nevertheless, the buildings that have been erected under the direction of Government architects in India show quite clearly that, whatever may have been the difficulties with which they have had to contend, they have been able to get their designs carried out in a craftsmanlike fashion. They have had the command of a plentiful variety of material, though Mr. Begg complains of the irregularity and the large size of the native bricks. The descriptions of the various buildings that we have given indicate that the modern resources and methods of European architecture have been fully employed to bring to the people of India the material, if not the æsthetic advantages, of the British raj.

NOTES AND COMMENTS.

ALTHOUGH Rouen, the headquarters of the Architectural Association excursion, which has been in progress during the present week, has of necessity suffered from material prosperity, viewed from the point of view of art, its shrewd inhabitants have nevertheless recognised the commercial value of antiquities, and hence there are still preserved many of the old houses that were the joy of Prout, though others have been swept away in the course of modern improvements or have fallen into irremediable decay.

The churches remain scarcely altered even by restoration since the days when St. Ouen received its western towers and the cathedral its cast-iron spire, and as these contain examples of work of all periods of the Renaissance down to Neo-Grec, even the student who to-day despises Gothic finds plenty to interest him, and the general opinion of the A.A. excursionists whose memories of Rouen go back a quarter of a century or more is that in spite of all losses the city is still charming.

The experimental draping of the London County Council Chamber with curtains and their subsequent removal without impairment of the acoustic properties is but one more instance of the very small knowledge of the acoustics of auditoria that most people, and even many architects, possess. Curtains are useful in some circumstances, and so also are stretched wires. These devices having on occasion proved beneficial in mitigating acoustic faults, it often happens, as in the case of the London County Council chamber, that they are installed when the cause of the defect is quite different to that operating in the case of their successful employment. Bad acoustics in an auditorium are the result of many diverse causes, often initial faults of design and construction in the form, the proportions, and the material, and to expect that curtains or wires will always provide a remedy is as sensible as to hope that a physician's prescription which has alleviated rheumatism will be equally effective in a case of typhoid.

The value of a competent Ministry of Fine Arts in this country can scarcely be doubted, and that this fact is becoming recognised outside strictly artistic circles may be gathered from the remarks of the Earl of Plymouth in his presidential address at the National Eisteddfod at Abergavenny. But everything depends on the competency of the Ministry, and political ability does not necessarily connote sound artistic judgment. The Earl of Plymouth said he was not at all sure that the time had not come when we should have in the Government a Ministry of Fine Arts. Some people thought that the arts flourished best entirely free from all official aid or all official control, but he thought that argument might be carried too far. It might be a great assistance if they had the encouragement of a Government Department to help, not only by recognising the value and the power of their artists, but by providing educational facilities in Wales itself, whereas at present they had to go further afield for the best of their education.

Recognition of the baleful influence of modern by-laws on the provision of cottages is the reason of a proposal recently submitted to Dunfermline Dean of Guild Court. Sir William Robertson, head of the firm of Messrs. Hay & Robertson, linen manufacturers, proposes, as an experiment, to build four cottages on ground near the firm's two works, but he acknowledges that the plans do not conform with the present regulations, which he desires to have modified. In a letter which had been sent to the Town Clerk, Sir William's agents said there was at present, and had been for some time, a great scarcity in Dunfermline of suitable dwellings for families of the working class, and that this scarcity was in large measure attributed to the disparity between the cost of erection of suitable buildings in accordance with the building regulations in force and the return in the shape of rent which might be expected. There seemed to be a consensus of opinion that if practicable it would be preferable that working people should be housed in cottages such as those proposed rather than in tenements of three or four storeys. It was indicated that if the regulations could not be so modified as to avoid a loss the scheme would not be proceeded with. Certificates were submitted by the Medical Officer of Health and the Burgh Engineer to the effect that adequate provision had been made in the plans for light and ventilation, and it was suggested that the regulations as to the height of ceilings and windows might be relaxed as desired. Dean of Guild Kenny, who was the only occupant of the Bench, said in regard to the height of the ceiling of the ground flat he did not think much would be added to the cost. The plans will now be submitted to the Town Council.

Failing a reduction of the costly requirements of existing by-laws, housing reformers in all parts of the country are arriving at the same conclusion—viz. that it is by a combination of municipal enterprise with co-

operative enterprise that working-class housing needs can best be met, and what reformers advocate to-day the State will sanction to-morrow. Our housing legislation is of a very superior character, but it needs amendment in certain important particulars. Most important of all is the need for more generous financial aid. The municipal authorities have to provide for the lowest-paid workers, and for that reason State grants are practically essential. The co-operative societies cater for the needs of well-paid artisans, clerks and professional men of moderate incomes—to enable their needs to be met, longer periods of loan, lower rates of interest, and advances of larger proportions of the total necessary capital are required. Along these lines reform is certain to proceed and the ugly abortions of the jerry builder will gradually be replaced by the more sanitary and the more attractive products of public and semi-public enterprise.

BRITISH SCHOLARSHIPS AT ROME.

PARTICULARS have just been issued of the scheme of competition for the Scholarships in Architecture, Sculpture, and Painting at the British School at Rome, offered for the second year by the Commissioners for the Exhibition of 1881.

Each scholarship will be of the value of £200 per annum, and will be ordinarily tenable for three years. Candidates must be British subjects, and less than thirty years of age on July 1, 1914.

The Faculty reserve to themselves the right, at their absolute discretion, to alter any of the conditions, periods, dates, or times herein specified, and to decline to hold the final competition or to select any candidate for it or to make any recommendation for the scholarship.

The Faculty also reserve to themselves the right to publish photographic reproductions of or exhibit any of the works submitted by competitors.

(1) ARCHITECTURE.

The competition, which will be conducted by the Faculty of Architecture of the British School at Rome, will be in two stages:—

A. An Open Examination.

B. A Final Competition, open to not more than ten candidates selected from those competing in the Open Examination.

A. THE OPEN EXAMINATION.

Competitors should notify the Hon. General Secretary, British School at Rome, 54 Victoria Street, London, S.W., of their intention to compete in this examination as early as possible, and in any case not later than January 24, 1914, and with such notification must enclose a certificate of birth or a declaration as to age and nationality, duly attested by two responsible persons.

The subject for this examination will be an Art Gallery, situated in the public park of an important provincial town.

The building to have a frontage towards the south of 250 feet (on which frontage is to be the principal entrance), with a depth of 100 feet, and to consist, on the ground floor, of a central top-lighted hall for sculpture, with side-lighted galleries around it. The first floor to have top-lighted galleries. A lower floor for reserve exhibits and stores may be provided, and the design may include any terrace, steps, and architectural adjuncts thought necessary for the completion of the design.

The size given may be exclusive of any architectural projections, such as porticos or other architectural features.

The drawings required are:—

Plans of the two principal floors.

Front and side elevations.

Longitudinal and transverse sections—all to a scale of $\frac{1}{8}$ inch to a foot.

A detail of an important portion of the front to $\frac{1}{2}$ -inch scale.

A perspective in which the building shall measure 18 inches.

A short descriptive report must accompany the design.

The general drawings may be finished in ink or pencil, and the view in any manner at the competitor's discretion.

Each design must bear a motto, and must be accompanied by an envelope enclosing the name of the competitor.

Drawings must not be executed as part of a school course,

and the competitor must submit a written statement to the effect that this regulation has been complied with, together with a declaration that the work has been done by his own hand.

The drawings, together with the above-mentioned documents, must be sent to the Hon. General Secretary, British School at Rome, c/o The Secretary, Royal Institute of British Architects, 9 Conduit Street, W., and must reach him on or before January 31, 1914.

B. THE FINAL COMPETITION.

This competition will be held "en loge" in London, and particulars regarding it will be announced hereafter.

The successful candidate in this competition will be recommended for appointment to the Commissioners' Scholarship.

(2) SCULPTURE.

The competition, which will be conducted by the Faculty of Sculpture of the British School at Rome, will be in two stages:—

A. An Open Examination.

B. A Final Competition, open to not more than four candidates selected from those competing in the Open Examination.

A. THE OPEN EXAMINATION.

Competitors in this examination should submit the following works:—

1. A model of a nude figure in the round from the life, half life size. The model to be executed by the competitor.

2. A model in bas relief of a composition representing not less than two figures, to be designed and modelled by the competitor, and to be 2 feet 6 inches by 1 foot 6 inches in size.

3. Four drawings from the life, two of which must be of the nude figure, one of drapery, and one of hands and feet life size. The drawings must be the work of the competitor, and must be on sheets of paper 30 by 20 inches.

4. Some drawings or photographs, or both, of original works which have been designed by the candidate.

5. Not less than two photographs or drawings of designs for decorative purposes with architectural features, the designs to have been the work of the candidate.

Competitors should notify the Hon. General Secretary, British School at Rome, 54 Victoria Street, London, S.W., of their intention to compete in this examination as early as possible, and in any case not later than January 24, 1914, and with such notification must enclose a certificate of birth or a declaration as to age and nationality duly attested by two responsible persons.

The models should be cast in plaster, and, together with the drawings and photographs (which must be unframed and unglazed), addressed to the Hon. General Secretary, British School at Rome, c/o Messrs. James Bourlet & Sons, Ltd., 17 Nassau Street, London, W., and delivered at that address not later than January 31, 1914. The words "Scholarship in Sculpture" should be clearly marked on the outside of each case.

The names and addresses of competitors must be clearly written and attached to each work.

The works must be forwarded at the candidate's expense. The works will be returned to candidates at their own expense.

The Faculty will undertake no responsibility in the case of any damage or loss.

B. THE FINAL COMPETITION.

This competition will be held in London from April 27 to June 20, 1914, and will be open to not more than four candidates selected from those competing in the Open Examination.

The subject will consist of a design for a Figure, Group, or Relief (as determined by the Faculty of Sculpture), for a given purpose, and to a given scale.

Eight weeks will be allowed for the execution of the design, and during that time candidates will be provided with studio accommodation, and given an allowance of £2 per week towards the cost of models, &c.

The successful candidate in this competition will be recommended for appointment to the Commissioners' Scholarship.

(3) DECORATIVE PAINTING.

The competition, which will be conducted by the Faculty of Painting of the British School at Rome, will be in two stages:—

A. An Open Examination.

B. A Final Competition, open to not more than four candidates selected from those competing in the Open Examination.

A. THE OPEN EXAMINATION.

Competitors in this examination should submit the following works:—

1. Not less than four drawings of the nude figure from the life.
2. One painting of a head, and one painting of a figure from the life in oil or tempera.
3. Two figure compositions in colour suitable for wall decoration (not larger than 30 inches by 22 inches).
4. Sketches of designs for decorative purposes, which should include some architectural studies.

Competitors should notify the Hon. General Secretary, British School at Rome, 54 Victoria Street, London, S.W., of their intention to compete in this examination as early as possible, and in any case not later than January 24, 1914, and with such notification must enclose a certificate of birth or a declaration as to age and nationality duly attested by two responsible persons.

The works submitted for the Open Examination should be addressed to the Hon. General Secretary, British School at Rome, c/o Messrs. Chapman Bros., 241 King's Road, Chelsea, London, S.W., and delivered at that address not later than January 31, 1914. The words "Scholarship in Decorative Painting" should be clearly marked on the outside of each package.

The names and addresses of competitors must be clearly written on the back of each drawing, painting, &c.

The works must be sent unframed and unglazed, and must be forwarded at the candidate's expense. The works will be returned to candidates at their own expense.

The Faculty will undertake no responsibility in the case of any damage or loss.

B. THE FINAL COMPETITION.

This competition will be held in London from April 27 to June 20, 1914, and will be open to not more than four candidates selected from those competing in the Open Examination.

The subject will consist of a design for a wall decoration to fill a given space for a given purpose, and to a given scale.

Eight weeks will be allowed for the execution of the design, and during that time candidates will be provided with studio accommodation, and given an allowance of £2 per week for models.

The successful candidate in this competition will be recommended for appointment to the Commissioners' Scholarship.

FORMATION OF STREETS ON THE OLD OAK ESTATE, HAMMERSMITH.

On December 17, 1906, the Building Acts Committee of the London County Council, acting on behalf of the Council, sanctioned the formation of streets on the Old Oak estate, Hammersmith, subject to the condition, among others, that all the parties necessarily interested should enter into a deed of covenant to reserve certain land shown on the approved plans for the future continuation northward of the road now known as Galloway Road, and for the continuation westward of the road now known as Dunraven Road.

Mr. M. J. Allen, the freeholder of the land in question, entered into the necessary deed, but subsequently made several applications to the Council to be released from his obligations thereunder so far as they affected the extension of Dunraven Road westward, on the ground that owing to the decision of the adjoining landowners, the Ecclesiastical Commissioners, it would be impossible to extend Dunraven Road as suggested. These applications were refused, but Mr. Allen was informed that if the extension of Galloway Road and another road known as Adelaide Road were carried out so as to give two communications into Sawley Road adjoining, the Council would be prepared to waive the covenants affecting the land reserved at the end of Dunraven Road. In 1911, although nothing had been done to carry these two roads through to Sawley Road, Mr. Allen notified the district surveyor that he intended to erect buildings on the land reserved under the covenant for the extension of Dunraven Road. Mr. Allen was warned that in view of the provisions of the deed of covenant any work would be carried out at his own risk, but the erection of the buildings was begun in 1911. Steps were therefore taken to obtain an injunction to restrain Mr. Allen from acting in breach of the covenants, and notice of motion in the matter was given. On the hearing of the motion Mr. Allen filed an affidavit

to the effect that at the date of the commencement of the proceedings he had no interest in the property which had some time previously been disposed of to his wife, and an order was obtained for the addition of Mrs. Allen as a defendant in the action. The trial of the action was delayed with a view to a settlement being arranged, but the proposals made by the defendant were not such as the L.C.C. could entertain. Shortly before the date fixed for hearing, solicitors acting for Mr. H. G. Norris intimated that the reserved plot upon which the houses had been erected was in Mr. Norris's possession, and acting on counsel's advice, Mr. Norris was added as a third defendant.

The case came on for argument before Mr. Justice Avory in May 1913, and judgment was delivered on July 17, 1913. His lordship found that there had been breaches of the covenant by both Mr. and Mrs. Allen, but that, as it was now impossible to continue Dunraven Road through into Wormholt Road owing to the erection of houses in Wormholt Road at the rear of the reserved plot, he was not in a position to grant an injunction to pull down the houses. An injunction was, however, granted against Mr. and Mrs. Allen to pull down a wall erected across the end of Galloway Road on the second reserved plot which prevented Galloway Road being carried through to Sawley Road. The Council was also awarded nominal damages of 40s. against both Mr. and Mrs. Allen, and they were ordered to pay to the Council the general costs of the action. Mr. Norris was dismissed from the action, no order being made against him or the Council as to costs except as to a small interlocutory matter in Chambers with regard to which the Council was ordered to pay Mr. Norris's costs. Leave to appeal was granted.

The decision is one of considerable importance to the Council as establishing its right to enforce conditions such as those imposed in its consent both against the persons entering into covenants required by the conditions and also against subsequent owners of the land. Should the defendants enter an appeal all necessary steps will be taken to protect the Council's interests. The expenditure incurred to date, which has been spread over a considerable period, amounts to about £300, but the Council's taxed costs will be recoverable from the defendants.

COMPETITION NEWS.

BARNSELY.—The Town Council on Tuesday adopted a recommendation that plans should be invited in open competition for the proposed municipal building.

LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs from British subjects for new offices for the Board of Trade, &c., to be erected in Whitehall. The authors of not more than ten designs will be selected to join in a final competition at an honorarium of £300 each. The assessors appointed are Mr. Reginald Blomfield, A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of this important competition, with full particulars of the accommodation required and plan of the site, can be obtained on application to the Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W., on payment of £1 1s., which sum will be refunded on receipt of a bona-fide design or on return of the particulars within three weeks.

ILLUSTRATIONS.**ARCHITECTURAL WORK IN INDIA.**

CONTINUING our series of reproductions from Mr. Begg's Annual Report on Architectural Work in India for the years 1911-12, commenced last week, we now give views of the Medical College, Lucknow, the Physics Block at Canning College, Lucknow, the new Pavilion at Government House, Bombay, and the new Council Chamber for the Secretariat Extension, Fort St. George, Madras. Descriptions of these buildings are included in our leading article.

THE annual meeting and excursions of the Cambrian Archaeological Society commenced on Monday at Devizes, Wilts, in conjunction with the Wiltshire Archaeological Society. There were about 100 members of the Welsh Society present, and from 50 to 60 members of the Wiltshire Society. The excursions included Silbury Hill (the largest artificial mound in Europe), Avebury, Stonehenge, Old Sarum, Battlesbury Camp, Bradford-on-Avon, and various early British camps.

ROYAL ARCHÆOLOGICAL INSTITUTE.—IV.

THE final three days of the Summer Meeting opened with a railway journey from Exeter to Burescombe, and from there a short motor-car ride brought the party to

HOLCOMBE ROGUS COURT.

The Court is an extremely interesting Tudor house dating from the middle part of the sixteenth century, and retains a considerable amount of decoration of the end of that period. The principal part of the fabric was built by a Roger Bluet, temp. Edward VI. Manor houses of that period are, as Mr. A. Hamilton Thompson, M.A., F.S.A., pointed out, extremely rare, and Holcombe Rogus is an interesting local survival of Gothic work to a time when it had been superseded elsewhere. The plan of the house consists of the hall in the middle of the building, with its porch and tower of three storeys. At one end of the hall, taking the place of the Mediæval cellars, is a dining-room, which is very well panelled, and has a plaster ceiling. Above it, and approached by a fine staircase, was the great chamber, now used as a bedroom. The staircase continues up to the Long Gallery, which runs the whole length of the roof, above the hall and its adjacent rooms. At the other end of the Great Hall were the "screens" and the doors to kitchen, pantry, and buttery, as well as a fourth doorway, as at Dartington, which leads by a vice to the rooms in the tower and to the drawing-room on the first floor. In 1591 considerable alterations were carried out, which included a wing at the kitchen end containing several handsome rooms; all of these have been taken down. Probably it was at this time the rooms over the kitchens were converted into one large apartment, which still serves as a State drawing-room. Also the same owner seems to have introduced the delightful panelling and other fittings into the cosy, bay-windowed rooms in the entrance tower. The climb up to the roof of this tower is rewarded by an excellent bird's-eye view and the close inspection of a length of ornamental lead guttering. The hall, drawing-room, and Long Gallery have all good ceilings of different dates. Mr. Thompson considered the most beautiful thing in this interesting house to be the Long Gallery.

Almost within stone's throw of the house is the fifteenth-century church, with chancel, nave and aisles, tower and vaulted south porch. There is a huge Jacobean pew, with a curious cresting, and the remains of a rood-screen. In the north aisle are two seventeenth-century monuments (one with a row of weepers) to members of the Bluet family. The church was appropriated to the Cluniac priory of Montacute in Somerset.

The motors were then boarded once more, and the journey continued to

TIVERTON CHURCH.

It is no very uncommon thing for the Royal Archæological Institute to be welcomed at churches in some more general and less official way than by the mere presence of the vicar or rector. Sometimes the flagpost is gay with bunting, at others the bell ringers are hard at work for the honour and reputation of the parish. At Tiverton the organ was called upon to give its sweetest harmonies and the mellowest notes to be expected from an instrument built in 1696.

The church was described by Mr. Thompson. It was almost entirely rebuilt at the end of the fifteenth century, and the same process was more or less repeated within the past century. Fortunately, a good deal of the old work has survived. The building consists of a chancel, nave, side aisles, north chapel, the well-known south or Greenway chapel, and western tower. On the north side is a round doorway ascribed to the early part of the twelfth century. Mr. Thompson suggested that when the south porch was erected in 1517 this Norman door was removed and put on the opposite side. Two features unusual in Devonshire are to be seen at Tiverton, viz. a broad panelled chancel arch and a clerestory. Mr. Thompson pointed out the carved capitals of the nave columns as being worth examination, and said that as a rule the foliage to be seen in such positions was generally worth a great deal more attention than was usually bestowed upon them. One of the capitals here is enriched with the passion flower. In Devon a wreath of flowers and foliage, sometimes with ribbons, is common round the piers in place of capitals.

The glory of the building must ever be the Greenway chapel, built in 1517 by John Greenway, merchant, who was born at Tiverton of parents of low standing about 1460, and died and was buried here in 1529. Greenway, or Greneway, lived at a time when the woollen manufacture was almost in its infancy. By industry he quickly acquired considerable

property, and in the course of a few years became very rich. Having no children, he employed his wealth on such benevolent work as the founding of almshouses and extensions to the church. It is often stated that the elaborate roof in the chapel has fan vaulting, but Mr. Thompson pointed out that it is structurally a segmental barrel vault with plaster fan ribs and pendants. Among the ornament is Greenway's merchant mark and the arms of the Goldsmiths' Company. The exterior walls, buttresses, battlements, and adjacent south porch are richly decorated with scenes from the life of Our Lord, ships of many kinds, woolpacks, and merchants' marks. The porch, which was taken down and rebuilt in facsimile in 1825, was described by Mr. Thompson as having some of the noblest carving in the West of England. In the middle of the chantry chapel floor are the brasses of this prosperous wool merchant and of his wife Joan.

Most interesting are two table tombs, one on each side of the chancel, and both of merchants. They are dated 1579 and 1613. Mr. Thompson remarked on the pure Gothic feeling of the former and on how the other was entirely Renaissance. The tower, he thought, was inspired by those of Somerset, though it lacked one of their chief beauties in having a single instead of two windows side by side in the belfry chamber.

Mr. W. H. St. John Hope, M.A., pointed out that the capitals were more nicely carved than anything the Institute had seen outside the cathedral of Exeter. Here, too, they had a proper abacus. Among the heraldry in the church was a representation of the arms of the Drapers' Company. In heraldic books these arms had been set down as "three papal tiaras irradiated or." People were puzzled as to what was the connection of the Drapers' Company with papal tiaras. But the arms were capable of a more prosaic explanation. The usual way in England of preserving the Blessed Sacrament during the Middle Ages was not by placing it in a tabernacle, as was now done, but by putting it in some sort of vessel, which was suspended over the altar. In a few rich churches this vessel took the form of a dove, as at Salisbury and Exeter; but in most cases it was a little tent or cone with a veil or pyx cloth over it. The ring of this was enriched with cresting, and often encircled by two or three crowns. The Drapers' Company therefore adopted for their arms three pyx-canopies with the linen veils which they supplied.

Not far from the church is Tiverton Castle. This is said to have been built in 1106 by Richard de Reparus, or Redvers, first Earl of Devon. It served as the chief residence of the Redvers till the execution of Henry, Marquis of Exeter, in 1539. There are no traces of the original building; the present remains are those of a fortified house of the fourteenth century or later. The finest thing is the vaulted gatehouse-porch on the east, which is remarkably perfect. There is a range of buildings on the south containing a chapel with an angle-tower to the south-west.

The Greenway almshouses were founded by the donor of the chantry at the church for five poor men. The buildings consist of a chapel and five houses.

Blundell's Grammar School, now forsaken for newer quarters, was founded in 1604 by Peter Blundell, who by will devised £2,400 to be laid out in the purchase of land, and directed that a school should be erected thereon sufficiently large to hold 150 boys from six to eighteen years of age, and certain masters. The old buildings, consisting of an upper and lower school, surmounted by a cupola and divided by two screens supporting a gallery, are now converted into private residences. But it needs no effort for the pilgrim to think of Jan Ridd as he advances across the grass forecourt, and to wonder on what spot Blackmore's hero fought and won his long fight against Robin Snell ("Mayor of Exeter thrice since that") on the 29th day of November in the year of our Lord 1673. That was the climax of Jan Ridd's scholastic pugilistic career. He tells us: "Hitherto none had worsted me, although in the three years of my schooling I had fought more than three score battles, and bedewed with blood every plant of grass towards the middle of the Ironing-box."

But sanguinary deeds like these ill accord with the archæological spirit, and were ousted by more suitable thoughts on arrival at

CULLOMPTON CHURCH.

This church was rebuilt during the earlier part of the fifteenth century, like many others in the neighbour-

hood, with broad aisles beyond which the chancel projects in a single bay. There is, as usual in Devonshire churches of this period, no structural division between nave and chancel. The rood-screen which crosses the church two bays from the east end, is complete with its coving. Mr. Aymer Vallance, M.A., F.S.A., considered it to be an extraordinarily perfect example and of somewhat earlier date than most of the others. Though its vaulting is usually described as fan-vaulting, he did not think it was so. The magnificent roof of the nave and chancel is divided into rectangular panels crossed by diagonal struts; its details show the early Renaissance tendency noticeable in some other parts of the church. In design it has more parallels in Somerset than Devon. Over the screen, and just under the roof, is a feathered arch with a moulded tie-beam, with which the head of the rood was connected by iron stays. It is generally held that the base of the cross was fixed in the huge beam now preserved at the west entrance, which is in two pieces and is covered with skulls and cross-bones. Against this theory Mr. Vallance raised the point that the skull and cross-bones would have been out of place as a base for the rood, inasmuch as Christ was not represented as suffering, but as reigning from the Cross.

The most beautiful feature of the church is the south chapel of four bays, which was added to the nave in 1526, or nine years after the Greenway chapel at Tiverton was commenced, by John Lane, a clothier of the town—doubtless in something more than spiritual emulation. It has fine fan-vaulting in five bays. Mr. Francis Bond, in discussing the smallness of the thrust of fan-vaults, places Cullompton in its daring before Sherborne, where in vaulting the nave the flying buttresses were omitted, the vault merely being given a more acutely pointed section than it had in the choir. At Cullompton the fan-vault rests on its north side on piers between the two aisles, and as the inner aisle and nave are unvaulted there is no counter thrust. An English inscription, requesting a Pater Noster and Ave for the donor, is carved beneath the windows of the chapel. Here, as at Tiverton, the buttresses have various carved panels symbolic of John Lane's business—*e.g.*, woolpacks and ships.

The western tower is of the Somerset type, and was the last portion of the church to be built. The inside of the tower arch is panelled. Across the west end of the church is a beautiful seventeenth-century gallery. There are several such galleries of that period in Devonshire. The south porch is in a peculiar position, being placed at the west extremity of the aisle. Cullompton Church was appropriated at a very early date to the prior and convent of St. Nicholas, Exeter.

Mr. Hope supported the contention that the carved block in the west porch was originally the base of the rood. He pointed out that not only were there the necessary sockets for the cross and its two attendant figures, but that the coarseness of the carving indicated that it was meant to be put up at some height. It would undoubtedly be a unique feature; but then there were many features in Devonshire churches which might be described as such. According to tradition, the Saviour's Cross was planted in the grave of Adam, and it was his skull and bones which were thrown up in digging the hole. With regard to the carvings on the arcade between the aisle and the south chapel, he pointed out that the prophets wore the same curious shape of hat as they had on the west front of Exeter Cathedral.

The concluding visit of the day was to

BRADFIELD HOUSE.

As the Walronds have been associated with this delightful spot for nearly seven hundred years, a glance at the history of the family may not be out of place. The first bearer of the name to come to this country was Waleran, "Venator" (hunter) to William the Conqueror. Bradfield came into their possession by a grant from Fulke Paynel between 1190 and 1216, and the deed, written in the same characters as Magna Charta, is still amongst the family papers. In 1671 William Walrond, who served as a Cavalier, was knighted. He seems to have built a chapel between the north wing and the rectangular lake, as there is an old deed granting "license to publicly read morning and evening prayer in the chapel, newly erected by William Walrond, Kt., at Bradfield." When William, Prince of Orange, landed at Torbay, November 6, 1688, some of his troops were quartered there. Sir von Ginkel,

Lieut.-General of the Cavalry of the United Netherlands, thus reports: "We have taken up our quarters in the house of Colonel Hendric Waldron, whose quarters we desire shall be kept open as long as the troops of his Highness shall remain in the town or neighbourhood. We have also left in the care of the aforesaid Colonel Hendric Waldron two black horses and one grey mare, which shall be kept for us." The property descended in the direct male line until 1848, when Frances Walrond succeeded her father. She married Benjamin Bowden Dickinson, of an old Tiverton family, and he assumed her name and arms by royal licence in 1845. Their only son, John, married and came to live at Bradfield in 1854. Finding the house in a state of disrepair, he decided to restore it, employing a Mr. J. Hayward to assist him. Sir John considered himself a good designer, and nearly all the improvements were his conception.

The main building dates back to the end of the fifteenth or beginning of the sixteenth century, the rest being added in the reigns of Elizabeth and James I. On plan it is in the form of an H, with the banquetting-hall, 44 feet by 21 feet, in the centre. On removing the plaster and white paint from the walls, fine old oak panelling carved in linen-fold pattern was brought to light, also some fresco above the dais with the inscription "Vivat Rex," and the Royal Arms of England quartered with those of France, besides various Walrond quarterings emblazoned on the window-panes. The dais has now been removed and the stone floor replaced by an oak one. The hammer-beam roof is a great feature, and remains in its integrity. The minstrels' gallery, dating about 1604, is at the south end of the hall, and there were curious openings, now abolished, which seem to have been used to hand up refreshments to the players. Altogether the hall is a magnificent example of its period, and one of the very finest in any house in the country. The music-room is perhaps the most remarkable apartment in the house. It is 34 feet by 20 feet, and oak panelled; the overmantel represents the "Tree of Jesse," and has besides some curious figures of the Elizabethan period. The room has also a heavily carved internal porch, with two panels dealing with Adam and Eve. In the room is a most elaborately carved "scolding chair," which was probably made between 1592 and 1600, with the following inscription:—

If you have a wife who scolds, life indeed is bitter;
So in this chair you'd better sit her,
Then go out and take your pleasure;
Come back, releasie her at your leasure,
And, after all, too light a measure.

When this chair is unlocked, anyone unwary enough to sit down in it is promptly made prisoner by the back of the seat dropping six inches and two curved hooks coming down from the arms and fastening down one over each leg. In the dining-room are some fine tapestry panels and a sixteenth-century oak table weighing 11 cwt. and 14 feet 6 inches long. The south front is now occupied by the sitting-room, front hall, and library; it was originally the servants' offices, a small stream of water running through the kitchen to turn the spit. The gardens were laid out by the Sir John already mentioned. He planted two fine avenues of cedar and oak, and turned the fore-court into a small Italian garden, as it was inconvenient for the approach of carriages. The old "rectangular" lake, exactly a square acre, on the north side, has been in existence as long as the house, and is enclosed in fine box hedges.

After tea Sir Henry Howorth, in acknowledging the hospitality of the Hon. Lionel and Mrs. Walrond, said the house was altogether the most interesting the Society had visited, at all events since he joined it. It combined the extraordinary charms of having been in the possession of the same family for 700 years, and it remained a magnificent specimen of an old manor house of its time, with every atom of delicate ornament in it that they would expect to find in the very nicest house in the time of Elizabeth, at all events.

Tuesday, July 29.

To not a few of those who attended it, one of the outstanding memories of the summer meeting, 1913, will always be the river trip from Totnes to Dartmouth. There may be some who consider the Dart somewhat over-rated and inferior to the Tamar, but at any rate the former

river ends at a Dartmouth, and has a unique outlet to the sea. After a delightful journey lasting an hour and a quarter down the river, with its cool woods and varied bird life, the boat came to her moorings not far from

DARTMOUTH CHURCH.

Mr. Thompson, in describing the building, said that from the historical point of view it was of great interest, because although the church was of considerable size, with a rood screen fully as beautiful as the one at Culmpton (and retaining much of its original colour), yet St. Saviour's was, strictly speaking, not a parish church, for it had always been a parochial chapel attached to the parish church of Townstall on the high hill above the town. It was appropriated to the abbot and convent of Torre. In 1349 William Smale, of Dartmouth, obtained royal licence to alienate a messuage and 50s. of rent in mortmain to the abbot and convent for a chaplain in the new chapel, which was to be built in honour of St. Mary. Mr. Thompson suggested this may have referred to a small Lady chapel. We hear of the definite completion of the parochial chapel in 1372, when it was dedicated in honour of the Holy Trinity or St. Saviour's by Bishop Brantingham. The original document is framed in the church—an admirable practice which might be followed elsewhere. Whether any of that church remains in the existing building is not at all certain, though the outer walls of the chancel, aisles, and transepts may be of the period. The arcades in the interior were heightened during the fifteenth century. This was by the extremely economical method of retaining the old pillars intact and placing a further block of stone above. The very plain western tower is engaged within the aisles. The rood-screen, one of the finest of its class, with ribbed vaulting beneath the loft, richly carved cornice and much old colour, crosses the church two bays from the east end. Mr. Bligh Bond places this screen seventh in his nine groups of Devonshire screens, as having a distinct character of tracery which is confined to the churches of the neighbourhood. They have, he says, ogee canopies with carved crockets and finials over each pair of lights, and the panels under the transoms he also considers as remarkable. There is a stone pulpit, covered with carving and canopy work, and likewise retaining old colour and gilding; the royal emblems were probably inserted in the seventeenth century. The nave was surrounded till within three years ago by galleries, with shields of arms of local families painted in the panels: those over the aisles and transepts have been removed, but the fine organ-gallery is left. In the place of honour in the chancel is the brass of a merchant, John Hawley (d. 1408), and his two wives, who was one of the chief benefactors of the church. The principal door is richly covered with ironwork and bears the date 1631, though doubt is expressed whether it is not really of an earlier date.

The party crossed over in the steamboat to Kingswear, on the other side of the estuary. It was curious to remember what an important part this port has played in national history. It was the rendezvous of the Crusaders' fleet in 1190; in 1346-47 it contributed thirty-one ships to the siege of Calais under Edward III. In later times several expeditions left its harbour for the exploration of the New World. An Italian spy sent a report concerning the town in 1599, when a Spanish invasion was being planned. He says: "It is not walled. The mountains are its walls." There was, however, the castle at the mouth, with its nightly drawn chain across the entrance to the Dart, and, above all, there was the courage of these strong men of Devon.

From Kingswear the motors were taken to Paignton, alternately losing and finding the beautiful coast of Torbay. After lunch a move was made to

PAIGNTON CHURCH.

Like most of the churches in Devonshire, that of Paignton was largely rebuilt in the fifteenth century. But it affords an excellent opportunity of studying the development from an earlier structure. Considerable portions of the older church remain in the outer walls and beneath the bases of the nave columns. It now consists of chancel, nave with aisles, a vaulted south porch, and a western tower; in the latter is a twelfth-century doorway. Mr. Thompson expressed his belief that this church was, in the twelfth century, very similar to that at Crediton, though on a smaller scale, in which case it would have

had the not uncommon feature of a central tower. The existing tower at the west end was, it is surmised, added after the aisles were built. It is a by no means uncommon thing to find the original west door taken out of its place and reinserted in a tower of much older date. The plain octagonal nave columns may be ascribed to the thirteenth century; they were probably heightened when the nave was rebuilt. Mr. Thompson doubted whether the aisles were more than heightened when the general reconstruction took place in the fifteenth century, and the present windows were inserted, though in most cases they were widened also. The most important thing from the artistic point of view in the ruddy sandstone church is the Kirkham chantry on the south side of the nave. It is divided from the aisle by a richly carved screen in white Beer stone, with wide openings on either side of the central archway. The sculptures include several effigies and carved panels, one of which represents the Mass of St. Gregory. Mr. Thompson considered that scarcely any work in England could show equal beauty and delicacy. The Kirkham family were seated at Blagdon Barton, some two miles away. There is, in addition, a stone pulpit of the Devonshire pattern, and a handsome fifteenth-century chest. The chancel and its chapels have been elaborately restored, and there is a modern screen.

Mr. W. H. St. John Hope agreed with the suggestion that the church possessed originally a central tower. The two tombs in Kirkham Chapel were, he thought, equal in delicacy to anything in Westminster Abbey. The men "weepers" on the outside of the chapel and the women weepers on the inner face of the tombs exemplify in a unique manner contemporary costume in this country. It was unfortunate the figures had lost their heads. The four angels on the top of the screen could be paralleled by the alabaster figures surmounting the tomb of the Duchess of Suffolk at Ewelme (Oxfordshire), which was not long ago visited by the members of the Royal Archaeological Institute. The pulpit was remarkable also, especially its representation of the Cross rising from a figure of the Holy Lamb. Altogether this pulpit marked a great advance on that just seen at Dartmouth.

A motor drive of about half an hour brought the party to the shell of

COMPTON CASTLE.

The manor-house of Compton was fortified early in the fifteenth century by one of the family of Gilberts who were later to become famous as navigators in Elizabeth's reign. The plan is an irregularly shaped quadrangle, surrounded not by a moat or ditch, but by a lofty wall still in great part perfect, especially on the east and south sides, which protected the castle admirably. The east front, in the centre of which is the corbelled entrance gateway, is covered by a large base-court, the extent of which can be easily traced. On the east side of the quadrangle, entered directly from the main gateway, was the principal block of buildings. Little is left of the hall, but the buildings at either end remain. At the north end were the private apartments, including the chapel, with large and beautiful fifteenth-century east and south windows, and originally with a western gallery, which formed a means of communication between the rooms on the upper floor. The doorway to kitchen, buttery, and pantry, and the stair to the gallery above the screen, remain at the opposite or south end of the hall: this portion of the house is earlier than the enclosing wall of defence, and was left unaltered when the wall was added. There are considerable remains of other buildings on the north and south sides of the quadrangle. The wall round the house is provided at intervals with machicolated projections, so arranged as to protect doorways and window-openings. The east front, with the high arch above the gateway, flanked by rectangular turrets, is one of the most imposing examples of late mediæval fortification in England. The site is commanded by the surrounding hills: the object of fortification appears to have been the protection of the narrow valley, which forms a pass from Torbay to the villages between Newton Abbot and Totnes.

The castle was held by the Gilberts for several generations, and at one time served as the residence of Humphrey Gilbert, famous by his own achievements and notable also as the half-brother of Sir Walter Raleigh. "Raleigh's Tower" still commemorates the latter Elizabethan, whose restless genius "designed nothing but what was extreme."

The next building to be visited was erected for quite a

different purpose. A drive through narrow lanes ended at Torquay and

TORRE ABBEY.

After the party had taken tea by invitation of Colonel and Mrs. Cary, a move was made to the site of the cloister, where a description of the building was given by Mr. Hope. Of the abbey there was, he said, practically nothing known beyond the date of its foundation in 1196 by William Brewer for the Premonstratensians or White Canons from Welbeck. The White Canons were a reformed branch of the Black Canons, and they practised a more strict adherence to the rules than did the Augustinians themselves. The great distinction between canons and monks was that the former were always in Orders, while the latter were not. Secular canons lived in the world; the White Canons lived in community. The rules for their guidance were strict but simple. The main differences between those for the White Canons and for the monastic orders were in matters of ritual and were of no importance.

The church at Torre Abbey had unfortunately been largely swept out of existence, though sufficient fragments remain to enable a clear idea to be obtained of its plan. Three sides of the wall of the cloister were left, though one was very much obscured by modern accretions. Of the arrangement of the cloister little could be said, except that it was a square, as the whole of the alleys had been swept away. Among the fragments now placed round the modern fountain in the middle are one of a pair of coupled bases of a cloister arcade. Open cloisters in this country were found to be too cold, and were eventually replaced by properly glazed windows. The church of Torre Abbey resembled a number of White Canon churches in having only one aisle—in this case to the north. Probably two aisles were not required, as the White Canons, unlike the Black, did not admit the laity into their monastery at all. In this they were like the Cistercians. The north cloister wall had unfortunately been destroyed; it appears to have had two procession doors, and there was another door opening eastward into the south transept. Very frequently, however, there was in the position of the latter a deep recess for a big cupboard which looked like a door when its back was knocked out, but this was a real doorway.

Reverting to the cloister, Mr. Hope pointed out where at some later time a piece of its east wall had been rebuilt so as to serve as a pigeon-house. In the corner of what was the vestry there is a circular staircase which led to the room above, and also possibly to the space above the two adjoining transept chapels. To the south of the vestry lay the chapter-house, with its entrance flanked by little window openings. The arrangement made an extremely charming composition and was a typical example of a chapter-house entrance. Mr. Hope said that when last he was at Torre Abbey there were no traces of its infirmary; since that time it had been uncovered, and consisted of a big hall lying to the south-east. It might be well to remember that an infirmary was not only the place where the sick people went, but that it was also where the infirm lived, and such of the brethren who had been professed fifty years and were therefore allowed to depart from the rigour of monastic rules. Similarly, when they talked of the calefactorium or warming-house, they did not mean the place for heating the monastery buildings, but the room where the brothers could go and warm themselves if necessary. Records tell us that here a good deal of gossip went on. Torre Abbey has interesting sub-vaults. The White Canons almost always placed their frater on an upper floor over a range of cellars. The block immediately to the south-west of it at Torre served as the kitchen. The range of buildings to the west side of the cloister is still fairly complete; it is divided into two by walls and an entrance passage with porch in the middle. All the ground floor formed the cellarer's range; one part of the floor above was almost invariably used as a guest hall, and it was possible that another part was the abbot's lodging.

The Mohun Gatehouse, through which the party drove to approach the abbey, was described as a fine specimen of a monastic gatehouse, with a wide entrance for carriages and carts and a narrow one for foot passengers. They are separated by open arches. It is of fourteenth-century date. There is a monastic barn 119 feet by 28 feet to the south-west dating from the thirteenth century, which at a later time was probably not unfamiliar to smugglers.

Mr. Hope, in conclusion, said that the houses of the White Canons in this country are in a very fragmentary state. There were only thirty-six of these establishments all told. In some cases there was nothing on the sites at all.

When Torre Abbey was surrendered to Henry VIII. in 1539 the revenue was returned as £396 0s. 11d. This was the largest of any of the Premonstratensian houses. Sir George Cary, of New Park, Hants, the ancestor of the present owner, purchased the ruins in 1662. From that time until the middle of last century it served as the Catholic place of worship for Torquay.

The party returned from Torquay to Exeter by train.

Wednesday, July 30.

The final day of the Summer Meeting was not attended with quite the delightful sunshine of all its predecessors. However, the heavy rain which fell during part of the morning was urgently needed as a dust-layer on the roads. The storm commenced while the members were making the railway journey from Exeter to Totnes. From this point a quarter of an hour's motor drive brought the party to

BERRY POMEROY CHURCH.

No matter how absorbed the visitor may become in the details of this village church, he should spare a thought for the Rev. John Prince, one of its seventeenth-century vicars. No modern historian of Devon can proceed far without referring to his account of the worthies of the county, and therefore without being affected by its ardent local patriotism and picturesque language. Here is a typical passage: "Inasmuch—without envy be it spoken—what has been avouched of England in general may be applicable to this county in particular, 'that she can live better of herself without being beholden to the rest of the kingdom, than that can subsist without being obliged to her.' . . . I would not be thought to speak so bold a truth of my country out of vanity or ostentation; but let it be to the glory and praise of the great God, who has so signally blessed us and laid so much the greater obligation on us to gratitude and obedience."

The church itself has, in the words of another and less reverent county historian, "a few fragments of an earlier and more interesting building worked in among the eternal Perpendicular which is so common in the West." The south aisle was erected in the fifteenth century at the expense of certain parishioners; the names of many of the subscribers, inscribed on the capitals, are still to be found in the village and neighbourhood. The vaulted south porch is believed by some authorities to belong to a later date. The general reconstruction of the church is ascribed to Sir Richard Pomeroy, whose tomb, dated 1501, lies in the chancel. There is a fine richly coloured screen, the full width of the church, retaining its original painted panels. In the centre of the parapet is a remarkably large boss, which looks as if it had been removed from the ceiling and stuck on there. Mr. Aymer Vallance pointed out that the screen doors have been incorporated into the inner door of the south porch. It appears, however, that the rector hopes to put them back soon to their proper place.

Mr. Hope, in referring to the tomb on the north side of the chancel, said that tombs very similar to it were also made to serve as Easter sepulchres. He would suggest that this might have happened here. It had been said that the little seated figure on the monument of Sir Edward Seymour (1613) was represented in that way instead of kneeling beside the other sons and daughters, in order to show that she was "simple-minded." But in his opinion it really commemorated a daughter who was so small that she was unable to stand. The corresponding figure lying flat and swathed in clothes commemorated a child who was unable even to sit.

The church is a mile away from the ruins of

BERRY POMEROY CASTLE.

There are few old buildings of the size and interest of Berry Castle of which so little is known historically. The Mayor of Totnes, Mr. Edward Windeatt, who acted as cicerone, said he could do little more than pull down old and ridiculous traditions respecting it. It appears quite clear that for 800 years only two families have possessed it, the Pomeroy and the Seymours.

As to the ruin, there is, in spite of the guide-books, no record of any fighting at or any siege of the castle, and its position does not appear to be one where a castle, other than as a residence, would be placed. Originally the house

MODERN EUROPEAN ARCHITECTURE.
ASIATIC TURKEY.



[From *La Construction Moderne*.

VILLA NEAR TREBIZONDE.—M. KACOULIDIS, Architect.

of the Pomeroy was no doubt a castellated residence only; the Protector Seymour, or Somerset, on purchasing the property in 1547, appears to have commenced, but never completed, a magnificent mansion. He lived only a few years after his purchase, and was at the height of his prosperity when he became the owner, and no doubt his death—he was attainted and beheaded—caused the building never to be completed, though £20,000 is said to have been expended on it. The soundest part is the fourteenth-century gatehouse, with drum towers and a curtain of the same date. There is an opening from the kitchen chimney into a secret chamber, or priest's hole, which has a small window to light it in the external wall of the castle.

No stream of water or well is now known in the castle or its grounds. Outside the castle near the road is a very fine old "Beech Tree," known as the "Wishing Tree." The tradition is that the person who walks three times round the tree forward and then three times round backward without touching the tree and without falling will have their wish, provided they wish all the time and tell no one until they get it.

The next move was to

LITTLE HEMPSTON CHURCH AND RECTORY HOUSE.

In the small church is an Easter sepulchre, a good screen and three effigies, two of knights and one of a lady. The roofs are original, and the tower retains its original stucco. There is a seven-sided font. The Mayor of Totnes mentioned that the registers were once sold for 12s., and were recovered from a second-hand bookseller. The entries commence in 1539. Until June 1553 the records of marriage contain no mention of the bride, only the husband's name being given.

The so-called "Rectory House" is so far from the church as to at once arouse doubts as to whether it could have ever been used as a residence for the rector. It is on the plan of a fourteenth-century manor house, with a dilapidated hall on the south side retaining its screens, and a vice in one corner leading to the upper rooms on the east side. The north side now contains a kitchen, buttery, and a cellar. There is a forecourt with a barn on the west side. This interesting survival is now in the occupation of a working-man.

B

After motoring to Totnes, followed by lunch, the party assembled at

TOTNES CHURCH.

The earliest notice of the existence of a church in Totnes is in a charter of Judhel de Totnais, the Norman baron, to whom the Conqueror granted the borough, by which he grants the church referred to in the charter as "ecclesiam Sancte Marie de Toteneo" to the great Benedictine Abbey of SS. Sergius and Bacchus at Angers. The church appears to have been rebuilt and consecrated by Bishop Bronescombe in 1259. The church was again rebuilt about 200 years afterwards, Bishop Lacy in 1432 granting an indulgence of forty days to all who contributed to the work. The original indulgence is in existence.

A noticeable feature of the interior is the fine stone screen across its full width, which was put up by the Corporation. It had formerly a wooden gallery; there is a broad stair which led to this gallery contained in a highly ornamental projection on the north side of the chancel. The south chapel, which contains a fifteenth-century tomb, appears to have had an upper storey. In the chamber above the south porch is a library of 300 books, which originally formed the lecturer's or preacher's library. They were purchased with sums of money given or left for the purpose, and gifts of books, in the seventeenth century.

Mr. Windeatt, the Mayor, referred at some length to the three figures about half-way up the Somersetshire-like tower. He suggested that the centre one represented Bishop Lacy, and that the inscription under the figure, in raised letters, was

"I made thys Tore."

In the niche on the right-hand side is a robed figure which might represent Prior Stoke, Prior of the Priory of St. Mary, Totnes, who subscribed £10 towards the erection of the tower, and that on the left of the much dilapidated figure appeared to be that of a soldier, with crossed legs.

Mr. Hope said there were a number of very curious points connected with the church. With regard to the large buttress pierced by an archway to be seen outside its east end, he did not think that there could be any doubt that at the time when the chancel was re-erected there was very little room between the churchyard wall and the chancel end, so they made a passage through the buttress wide enough for people to go through for processions and other purposes. There were all over the country a large number of such expedients, especially of a passage cut through a tower at the west end. With regard to the hagioscope, in the south wall of the chancel, any suggestion as to the use of a parish church by lepers might be summed up in the word "bosh." Lepers were strictly confined to their own lazarus-houses. The most important thing for visitors to note in the church was the screen. It must originally have been a most gorgeous thing. There could be no doubt that the way up was by the turret on the north side and to the east of the screen. The side pillars are too thin to have had a staircase put into them, and it would have been impossible to make a passage through. Some people were of opinion that the church was monastic; but as a fact there was nothing monastic about it. It was, indeed, as obviously a parish church as any in Devonshire, and all the documents proved the same fact. He read the inscription under the central figure on the west tower as being: "I made thys Fote." It referred to the foot or course of stonework at that part of the tower.

It was not unknown for the names of the donors of the different courses to be so inscribed. The figure above the inscription was again a puzzle. He took it to be a decayed representation of a crested helm with a shield of arms, but in its present condition it was difficult to speak positively. The figures flanking it were evidently kings.

Mr. Aymer Vallance demolished the pretty legend that chancel screen doors were never made to close lest they might shut out anyone seeking sanctuary. The screen was remarkable both for being in stone and for its proportions. It still retains its iron fittings.

Rev. J. F. Chanter exhibited a parochial silver-gilt chalice, which he met with a short time ago at Ashprington while cataloguing the church plate of Devonshire. He gave the date of it as 1270, and said that the only other chalice of its kind still existing once belonged to Berwick St. James in Wiltshire, and this was now in the British Museum. The Ashprington chalice was the oldest piece of plate used at the present time in any parish in England. Its cover is Elizabethan, and was made by a Totnes goldsmith between 1673 and 1676. Mr. Chanter also showed an Edwardian cup as being the only one in the county.

Mr. Hope said that the earliest chalices might be divided into two groups, viz. (a) those in which the bowl and the stem were in one piece; and (b) those in which the stem and knot were wrought as separate pieces. There was a parallel to the chalice shown in one preserved at York Minster, which was found in the grave of an archbishop. It dated from the middle of the thirteenth century. There could be no doubt that the chalice shown was the only one of its kind in the country still in use. There was, however, a very early paten used in a Hampshire church, and the York chalice was used occasionally. The Edwardian cup was even more rare than the thirteenth-century chalice.

THE GUILDHALL.

The interesting Guildhall stands on the north side of the church, and was formerly a portion of the Priory of St. Mary, and was granted to the Corporation for a Guildhall by King Edward VI. in 1553, which date is over the Mayor's canopied seat. The muniments of the Corporation are of considerable interest, and include several charters and the Rolls of the Guild Merchants of Totnes from A.D. 1260. The Mayors date from 33 Edward IV., and from 1377 the list is complete.

THE CASTLE.

The castle stood close to the north gate, which is still existing. It was probably thrown up by Johel, who received Totnes and 107 manors in Devon from the Conqueror. It is a mount-and-bailey castle, with shell keep, but the arrangement is unusual, inasmuch as the mount is between the bailey and the town. The ditch round the mount is in great measure destroyed and built on. The bailey is on the north-west, and its formidable ditch remains, in places 20 feet deep. The castle was in ruins in Leland's time.

The concluding visit of the Summer Meeting was to

DARTINGTON HALL.

For the following description of it we are again indebted to the admirable Programme:—

The buildings are, roughly speaking, of three periods. The farm buildings on the east of the site occupy the fore-court of the older house; the old hall, north of a plain gateway, is a fourteenth-century building with a good timber roof, and is now used as a barn. The plan was probably similar to that of the small manor house at Little Hempston. The manor was granted by Richard II. to his half-brother, John Holland, Duke of Exeter, who enlarged the quadrangle and added a magnificent block of buildings on its western side. This included the great hall, now roofless, with a porch and tower above, and the kitchen and offices at its south end, with two storeys of rooms above the pantry, buttery and kitchen-passage. The hall has a large fireplace in its north wall, behind the dais; the doorways at the south end are perfect. The kitchen, in the south-west angle of the block, contains two fireplaces, and is entered from a small yard at the end of the passage, with its own outer doorway. The passage through the screens led into a large second court, a portion of the west wall of which remains. The present house, largely Elizabethan, but very plain in detail, is composed of a main block at the north end of the great hall, on the site of the earlier cellar and great chamber above. A long wing, chiefly of fifteenth-century date, with doorways covered by shallow porches in the ground floor, connects it with the older hall. The eastern portion of this wing has been little altered. It contains early fifteenth-century windows, and has an outer stair. The old church of Dartington stood close to the house on the north side. It was taken down in 1878, and the screen and pulpit removed to the new church, which is at some distance, but the tower is left in the old graveyard.

After tea by invitation of Mr. and Mrs. Champenowne, Mr. A. Hamilton Thompson gave an account of the building and of its owners.

Mr. St. John Hope thought that the fireplace in the fifteenth-century hall must have been a later insertion, as shown by the fact that its mouldings were different from all the others in the room. The normal position for a fireplace at that time was either at the side or in the middle of the hall underneath a hole in the roof through which the smoke escaped. The present fireplace was at the back of where the dais should be—a most remarkable and uncomfortable place for it. The windows were most unusual; the tall spaces below the transoms are rebated for shutters. How the big openings on each side of the mullions were filled he could not say. The design of the tracery was strange. Mr. Hope said he would like to ask the owners if they could not persuade themselves to remove the pestilential ivy. Everyone could see for themselves the damage it was doing, and how it

**MODERN EUROPEAN ARCHITECTURE.
ITALY.**



VILLA BURGISSER, FLORENCE.—Signor GIOVANNI PACIARELLI, Architect. [From *La Construction Moderne*

was forcing the window tracery out of place. Any architect would tell them that ivy was as destructive an agent as it was possible to have. There were plenty of other places where ivy could be grown instead of upon that fine hall.

Fortunately, there was leisure to quietly wander around this extremely interesting hall, with its straggling buildings

and pleasant gardens. It is just such a place as this that a contemporary woman novelist may have had in her mind when she wrote: "One could not help thinking of the long-dead women who must have planned and loved this ancient, warmly walled garden, so safely hidden and guarded from the outside world. . . . The house looks full of strange secret

histories, and ghosts of the past. But one would be proud to belong to it. . . . It seems to be something solid, standing firm on the grim old rock, while generation after generation pass through its halls and disappear."

Dartington Hall was an excellent place at which to end a highly successful programme of eight well-filled and well-planned days of sightseeing. The arrangements were, as usual, carried out with extraordinary smoothness, and once more prove the ability of the organisers at the Royal Archaeological Institute.

THE ARCHITECTURE OF RAILWAY STATIONS.

II

It would be unjust to our subject if we ignored here the opinions of John Ruskin, for everything that he said formed a metaphorical illuminated text in his day, and on the question of railway stations he was far from dumb.

"Another of the strange and evil tendencies of the present day is to the decoration of the railroad station. Now, if there be any place in the world in which people are deprived of that portion of temper and discretion which is necessary to the contemplation of beauty, it is there. It is the very temple of discomfort. . . .

"The railroad . . . transmutes a man from a traveller into a living parcel. For the time he has parted with the nobler characteristics of his humanity for the sake of a planetary power of locomotion. Do not ask him to admire anything. You might as well ask the wind.

"There never was more flagrant nor more impertinent folly than the smallest portion of ornament in anything concerned with railways or near them. Keep them out of the way, take them through the ugliest country you can find, confess them the miserable things they are, and spend nothing upon them but for safety and speed."

These uplifting thoughts are to be found in that chapter of Ruskin's "Seven Lamps of Architecture," which he complacently entitles, "The Lamp of Beauty." They make it appear the more wonderful that the finest and, on the whole, the most beautiful station in England was designed and built in his time.

The Midland Railway did not extend their line to London till comparatively late in their history, and they came with the certainty of having to face keen competition from their two neighbouring rivals. With commendable enterprise they realised that a fine building would be a profitable advertisement, and so decided to erect what is even now the most costly terminus for its size in this country. The initial requirements were laid down by the company's brilliant engineer, Mr. W. H. Barlow, and a competition was instituted for the architectural work, won by the late Sir Gilbert Scott. The first designs provided for an even higher façade than that now existing, a storey being subsequently omitted when a reaction set in after the railway boom. It was originally intended to devote one floor of the present hotel to offices. This station is one of the few of its age that has never required enlarging, thanks to foresight in the first instance, and forty-five years after its opening in 1868 it is never uncomfortably crowded. Its most noteworthy feature is the wonderful roof, so admirably suited to the Gothic character of the buildings, with the principals curving from platform level to a point in the centre. This roof has the remarkable span of 240 feet and a height of 100 feet. Like Charing Cross, St. Pancras Station is raised considerably above the adjoining streets, the rails being 17 feet higher than Euston Road. The substructure is ingeniously utilised for beer cellars, and is pierced by two tunnels for underground connections to the City. By setting back the main front of the hotel from Euston Road a fine approach with wide steps and an easy carriage-road is obtained, and a much more efficacious method of dealing with vehicles secured than at Charing Cross. Primarily because of this slope, the main entrance to this station is at the side, and not at the front as is usual. Of the architecture of St. Pancras little need be said. It is typical of Sir Gilbert Scott in his happiest vein, and is one of the greatest works of the Gothic Revival. Alien to modern ideas, it nevertheless has a great attraction even to-day, and with its romantic lines of turrets and tracery forms a pleasant variation on the staid examples of Renaissance type. Moreover, it preserves a freshness usually lacking in buildings of its age. In the writer's opinion no important English station of the nineteenth century surpasses St. Pancras in general excellence.

After the completion of this terminus there was a lull in the building of railway stations, the supply having ap-

parently met the demand, but one or two examples stand out by reason of their size. The Liverpool Street terminus of the Great Eastern is dull and dingy, inconveniently arranged, and extremely ugly. It was opened in two portions in 1874 and in 1894.

St. Enoch's, Glasgow, closely followed the lines of St. Pancras, but was again extended in 1898, and is now much larger than its London prototype. Glasgow Central was built in 1879, and has also been greatly improved in recent years. Prince's Street Station, Edinburgh, is a recent terminal, and was designed by Messrs. Peddie & Kinnear, of Edinburgh. The total cost was over £120,000, and the long low arcaded façade, with an angle pavilion at the principal corner, forms an admirable composition.

The latest great trunk railway to enter London was the Great Central, with the well-known terminus at Marylebone. In this case the company have looked a century or so ahead, and have acquired property to enable them to enlarge the present station to an enormous size when necessary. But it is a question whether the result is an architectural triumph. The huge Great Central Hotel occupies the frontage to Marylebone Road, only a narrow way being left on either side for access to the station. This access can, no doubt, be widened later by the demolition of adjoining houses, but at present the station proper is out of sight. Its façade looks almost contemptible under the lee of the hotel, and is long and low. A brick and terra-cotta gabled treatment has been adopted in preference to the style of St. Pancras or that of the new Victoria, and the architecture is not of the highest quality. Externally the station is of its ultimate width, but within only a part of the platform accommodation has been provided. The circulating area is adequate, if not so ample as in the most recent practice, and the interior of the train shed is bright and attractive, with the plain unadorned steel roofing, which, as engineers are at last beginning to realise, has its own peculiar artistic value. Marylebone Station is admirably planned for traffic considerations and for future extension. Its chief defect lies in the absence of any notable entrance from an important highway to a great city.

In the two principal stations at Nottingham, also in the Midland stations at Leicester and Sheffield, may be seen examples of rebuilding necessitated by keen competition. All these are through stations, and in three cases out of the four the approach is from a bridge over the lines. This increases the difficulties of designing a monumental block of buildings, but nevertheless all are reasonably successful, the example at Nottingham (Midland) especially so. In such a position the booking offices and parcel offices only are placed on a level with the bridge; refreshment-rooms, lavatories, and waiting-rooms down below on the platforms. Glazed tiles and bricks, wide platforms, and comparatively low roofs with modern patent glazing are features in all these large stations.

The most important terminus in London, from an architectural or engineering point of view, at the present moment is Victoria, on the Brighton Railway. This vast reconstruction has cost over a million pounds, and the alterations occupied eight years. It is remarkable that, as at St. Pancras—the finest of the older stations—this wonderful result has been attained in the face of great difficulties. An enormous amount of traffic had to be dealt with during the whole undertaking. The Grosvenor Canal had once run under the site of the new annexe to the hotel, and to carry this heavy building a foundation of piles, each some 40 feet in length, had to be sunk through the soft alluvial clay. The roadways of the two bridges over the station had to be raised between 5 and 6 feet without interfering with vehicular traffic.

In the new Victoria may be seen the last word in English station design. Space, light, and brightness are its characteristics. The circulating area is more generous than in any London terminus. The booking-hall is 120 feet by 70 feet, and has sixteen windows for tickets. Main line and suburban passengers are separated in a clear and unmistakable way. Everything is in its place, and to get lost should be impossible. The underground lavatories are obvious without being obtrusive. The roof is constructed on the modern "ridge-and-furrow" system in 50-foot spans, with a height at the ridges of 64 feet, and is so arranged that the whole of the glass can be cleaned in a few days.

The architecture of the façade has no dazzling features, and suggests a restraining hand on the architect who designed it. Yet it is by no means despicable, and its chief defect is the inevitable one of being cut in half, to a spectator, by the great glazed roof of the carriage shed.

In the screen wall to Buckingham Palace Road, however, the architect has surpassed himself, and has, indeed, achieved

a masterpiece. No such a treatment of a blank wall has ever been conceived since George Dance designed Newgate, and the Royal Arch at the northern end is true to the best traditions of Palladio and Sammicheli.

The interior features of this station are chiefly carried out in dull green and white Doulton ware, a very appropriate medium for the purpose.

The adjoining station on the South Eastern has had to bestir itself, for even "The Shortest Sea Passage" is not an infallible advertisement, and though the train shed is as cramped and ugly as ever, the façade, with a length of 170 feet to the station yard and 200 feet to Wilton Road, forms, with the possible exception of the arch above mentioned, the finest and boldest example of modern railway architecture in this country.

Lastly, there is Waterloo, a new Colossus, which, when completed, will be the largest station in the United Kingdom. It is difficult for an outsider to forecast the whole project without official information, but it would appear that the present cliff-like range of new offices facing Waterloo Road is to be continued across the whole end of the present station, a matter of nearly 1,000 feet. It is thirteen years since the scheme was sanctioned by Parliament, and it will be many more before the whole reconstruction is completed. A large area of property was acquired, and fresh dwellings built for 1,750 homeless persons. The existing approach roads were diverted, and at the present moment navvies are engaged in filling up what a short time ago was a principal approach to form a foundation for platforms and rails. It will be no loss to the community when the antediluvian range of buildings on the departure platform has disappeared, and this should be accomplished by New Year's Day, 1914. A spectator will then be able to appreciate the full magnitude of the change.

The width of the circulating area will be on an average 80 feet, and its length, if the writer's surmise be correct, nearly 1,000 feet. A system of subways connects every platform with the tubes, and enables porters to deal with luggage. The roofing system does not greatly differ from that at the new Victoria, and is simple in character. The architecture of the office buildings forming the frontage is again somewhat attenuated, and suggests a depleted exchequer, which, considering the size of the undertaking, is not wonderful. The new booking-hall is 90 feet by 45 feet and 30 feet high, with the modern elliptical type of ticket office, while the adjoining luggage hall is 75 feet by 45 feet. The men's lavatory represents the summit of sanitary luxury, with an abundance of marble and glazed tiling, the joinery being in teak. Three fine bathrooms and a hair-cutting room are also provided. The suite of waiting-rooms and refreshment-rooms still remains to be built.

Other interesting reconstructions on a much smaller scale are those carried out by the Metropolitan Railway at King's Cross and Baker Street. In the former case a semicircular roof of glass and iron spanning the whole station has been taken down and replaced by low-span roofs over each platform, the booking offices and circulating area completely remodelled and vastly improved, and a wide bridge of reinforced concrete carrying the L.C.C. trams built across the station.

At Baker Street a most difficult problem awaited the engineer, and so well has it been solved that the architect is enabled to produce a creditable design on the steel framework provided for him. Here, again, effective space was the desideratum in place of a warren of ramshackle gangways, which was all that the old Baker Street comprised. Glazed bricks and tiles with teak joinery and artistic details again make this new rebuilding a success, and the façade to Baker Street, of Portland stone, promises well for the future when all is completed.

The influence of the Tube railways and the electrification of the Underground have made for progress in railway architecture, but before leaving this subject of English stations something should be said of those little wayside buildings which frequently charm a traveller, small country stations where even a railway architect has apparently caught the spirit of the traditional style in the locality. Even so far back as early Victorian days charming designs were prepared for such structures, as may be seen in old prints of the original sketches for Chesterfield and Ambergate stations on the Midland.

(To be continued.)

MR. GEORGE HENRY BIBBY, formerly F.R.I.B.A., died at East Twickenham last month.

RESTRICTIVE BUILDING COVENANTS.

AN interesting case was recently heard in the Chancery Division which has more than local interest, although nominally it solely concerned Boscombe. The hearing by Mr. Justice Sargent lasted three days, and judgment was delivered on the fourth day. The following report appeared in the *Bournemouth Guardian*:—

Mr. Justice Sargent had before him an action by Mr. Richard Thomas Sobey for an injunction restraining Mr. John James Sainsbury from erecting on two plots of land situated on the south side of Christchurch Road, Boscombe, in the county borough of Bournemouth, any building other than private dwelling-houses, or for the purpose of carrying on the profession of a surgeon, physician, or the business of a lodging-house keeper.

Mr. Robert Younger, K.C., Mr. Alexander Grant, K.C., and Mr. Owen Thompson (instructed by Messrs. Mooring Aldridge & Haydon, of Bournemouth) appeared for the plaintiff; whilst Mr. A. F. Peterson, K.C., Mr. Mark Romer, K.C., and Mr. Bryan Farrer (instructed by Messrs. D'Angibau & Malin, of Boscombe) were for the defendant.

For the plaintiff, Mr. Younger said that the defendant was the well-known provision merchant, who had branches of his business in many parts of England. The defence, he understood, would be that with regard to one plot, at least, the restricted covenant had gone, owing to a change in the character of the neighbourhood which had taken place since the date of the covenant was entered into. With regard to the other plot, defendant said he had no intention of breaking the covenant, but plaintiff's case was that he had threatened at the time the writ was issued to do so. Counsel said the property in question formed part of what had been known as the Boscombe Manor Estate, which had belonged to the Shelley family. Sir Percy Shelley died in 1889, and Lady Shelley in 1899. The unsold portion of the estate was sold to plaintiff in 1911, and it was on part of this property that the defendant, who was the assign of that building covenant plaintiff was seeking to enforce, was building. Apart from the south side of Christchurch Road, the whole estate had been laid out as residential, and the only part which could have changed in character—which was denied—was that fronting upon Christchurch Road, and lying to the west of Heathcote Road. Mr. Younger traced in detail the history of plaintiff's title, and argued that he had a clear covenant entered into by the defendant's predecessor, from which the defendant was not entitled to escape, and that the defendant could not do as he liked, as he appeared to imagine he could. Counsel further said that plaintiff had offered to allow Mr. Sainsbury to erect his shop on the frontage of the Christchurch Road on the payment of £100, which Mr. Sainsbury refused, and the important point to plaintiff was that if Mr. Sainsbury was right the covenant would be gone, and that all private houses right up to plaintiff's boundary would be capable of being turned into shops, cinema theatres, or anything else that the tenants pleased.

Mr. C. T. Miles, architect and surveyor, of Bournemouth, was called, giving expert evidence as to the nature of the locality in dispute.—Cross-examined, he agreed that Christchurch Road was the principal shopping thoroughfare in Boscombe, that Reveley and Boscombe Grange had been to let for a long time, that there was a Gordon Boys' Home and Nurses' Institute in the area, and advertisements soliciting warehousing, engage removal and orders for firewood, and that plaintiff himself was offering shop fronts.

Mr. E. L. Lane, J.P., of the firm of Messrs. Lane & Smith, estate agents and surveyors, of Bournemouth, said his firm acted for Sir Percy in developing the property. Christchurch Road was the old coach road to Poole; and, with a belt of shops, was succeeded by residential property. The Gordon Boys' Home upon the estate was a large residential house, the external character of which had in no way degenerated.—Cross-examined, Mr. Lane said in one case six doctors and a dentist lived near together. He supposed the plaintiff had allowed shops to be built each side of the entrance to the Boscombe Manor Estate that they might supply the needs of the residents in the houses.

Mr. Peterson, K.C., for the defence, urged that the plaintiff was prevented from suing by reason of the acts or omissions of himself and his predecessors. Considerable shop development had taken place, and one could not sue where the objects for which the covenant had been entered into could no longer be attained.

Mr. Arthur Godwin Pratt, land agent and surveyor, of 126 Christchurch Road, Boscombe, was the first witness for

the defence. He said the district had gradually changed its character. The road had generally commercialised from Poole to Bournemouth. At a point near were over fifty shops and four pairs of private houses. He himself had had to reduce rents, and had lost a tenant through the proximity of the plaintiff's shops.

Mr. Alexander J. Abbott, J.P., estate agent and surveyor, of 180 Christchurch Road, Boscombe, gave corroborative evidence as to the gradual commercialisation of Christchurch Road, and was supported by evidence from Mr. H. A. Hawker, architect, of Bournemouth, and Mr. W. D'Angibau, solicitor, of Boscombe.

Dr. James Atkinson Hosker, J.P., said he had known Boscombe for upwards of thirty-one years. He attributed the change to the rapid growth of Boscombe from 1896 onwards.—Cross-examined, witness agree that apart from the Christchurch Road the district was residential.

The evidence concluded, Mr. Romer, K.C., for the defence, argued that the law was that if owing to Christchurch Road having developed into a shopping thoroughfare (which it had without any complaint) the object of the restrictive covenant could not be attained. Then the Court could not enforce it. The existence of shops in Christchurch Road was a necessity to the estate, and plaintiff himself had erected ten and was proposing to build more.

Mr. Younger, K.C., replying for the plaintiff, declared that the shops upon which defendant relied as a change in the surroundings were built under express permission, and there was no alteration in the character of the neighbourhood. This did not in any way affect the bargain made with defendant's predecessors by means of the restrictive covenant.

In reply to his Lordship, Mr. Younger said that even if plaintiff had released persons holding seventeen plots from the covenant he could still enforce it against the persons holding the eighteenth, unless the situation of the latter had been altered inequitably thereby.

Mr. Justice Sargent delivered his reserved judgment on Thursday. He said it was clear that the character of the neighbourhood had changed through the enormous increase in the population of Boscombe since the date of the covenant, and that a long line of shops had been erected, so that this part of the Christchurch Road had now become an extremely busy shopping and commercial thoroughfare. He thought the provisions of the plaintiff's predecessors in title were sufficient to prevent the Court from granting equitable relief by way of injunction as claimed by the plaintiff. He was entitled to take into account the general change in the character of the neighbourhood, irrespective of any acts or omissions of the plaintiff and his predecessors in title, and he therefore came to the conclusion that the action must be dismissed with costs.

THE BRITISH MUSEUM.

ACCORDING to the annual "return" of the British Museum officials the total number of visitors to the museum in Bloomsbury during 1912 was 754,872, being more than 31,000 in excess of the figures for 1911, and 11,000 more than the highest total since the year 1905. This is the more remarkable since the public galleries were closed from March 5 to 24 inclusive, and partially from March 25 to April 13. It is estimated that about 60,000 visitors were lost during that period, but the deficit was more than made good by the very high totals recorded in the summer months. In August the number of week-day visitors exceeded 100,000 for the first time on record, and the total for August and September was greater by 61,409 than that for the corresponding months in the very hot summer of 1911. The total for week-days was 697,094 (an increase of 37,308), and for Sundays 57,778 (a decrease of 6,007).

The number of visits by readers to the reading-room was 236,643, which is the highest total hitherto recorded, and 13,000 above the figures for 1911. The daily average was 778, and the total number of volumes supplied was 1,561,138, giving an average of nearly seven volumes daily for each reader, exclusive of the volumes on the shelves to which readers have free access.

The visits of students to other departments of the museum also reached a higher total than any previously recorded, namely, 38,698, as compared with 37,911 in 1911. There was a decrease in the number of students working in the sculpture galleries, but increases in the use of the students' rooms in nearly all the departments.

The handing over of the Extension building to the Trustees

is still delayed. Contracts have been made for the fittings of the new North Library and the Department of Prints and Drawings, and work on the preparation of these is in full progress. The occupation of the other parts of the building will depend on the funds available for furniture and fittings.

The reconstruction of the last section of the roof over the northern galleries with fire-resisting materials was taken in hand towards the close of 1912. Progress was delayed by the failure of the contractors to deliver the materials in time, but the work will have been completed shortly after the end of the financial year. The redecoration of the Mausoleum Room has also been completed.

In June 1912, on the occasion of the retirement of Sir Sidney Colvin from the Keepership of the Department of Prints and Drawings, an exhibition of the principal drawings by European artists acquired during the last eight years of his Keepership was arranged, in place of the exhibition of Chinese and Japanese drawings previously on view. It is intended that the present exhibition shall remain open until the department removes into its new quarters in the Extension Building.

In view of the increasing size and importance of the collections of Oriental art, a new Sub-Department of Oriental Prints and Drawings has been created.

The work of the official Guide has been continued throughout the year. His tours are well attended, and great satisfaction with the instruction given by him is frequently expressed.

In another direction an attempt has been made to widen the influence and increase the interest of the museum. A counter has been established in the entrance hall for the sale of official publications and of picture postcards and other photographs of objects in the collections. About 50,000 postcards alone were sold in the first five months, and there is ample evidence that this opportunity of obtaining reproductions of works of art and objects of antiquity is much appreciated by visitors.

The excavations at Jerablus were continued in the spring and autumn of 1912, the second season being made possible by the generosity of an anonymous benefactor. The results in the way of sculptures, inscriptions, and pottery were highly encouraging; but much still remains to be done.

The number of separate objects incorporated in the collections of the several departments during the year 1912 is as follows:—

Department of Printed Books:—	
Books and Pamphlets	30,916
Serials and Parts of Volumes	69,095
Maps and Atlases	3,736
Music	12,477
Newspapers (single numbers)	235,926
Miscellaneous	6,981
Manuscripts and Seals	1,453
Oriental Printed Books and Manuscripts	2,144
Prints and Drawings	5,469
Egyptian and Assyrian Antiquities	1,806
Greek and Roman Antiquities	1,014
British and Mediæval Antiquities and Ethnography	1,012
Coins and Medals	2,260
Total	374,289

No single acquisition has been made of equal importance to the Huth Bequest of the previous year, or the Royal collection of music deposited by his Majesty the King. But all departments show steady progress in the addition to the national collections of objects of real importance and interest.

The main resources of the Department of Printed Books are necessarily devoted to the acquisition of new books in all languages and in all branches of learning. The continual increase in the output of printed literature throughout the world makes it increasingly difficult to maintain the ideal which the department sets before itself, of possessing all the books which any serious student is likely to want. A special form of this difficulty arises from the constant appearance of new periodicals purporting to possess scientific value. Apart from these current needs, the principal efforts of the department are directed towards the development of the collection of Incunabula, the catalogue of which is now in progress.

Two very important sales of artistic collections took place in the course of the year, and the Department of Prints and Drawings was enabled by the generosity of some of its many friends to profit by the opportunity. At the Taylor sale several exceedingly rare prints belonging to Turner's "Liber

Studiorum" and the "sequels" to it were secured with the help of Mr. Henry Oppenheimer and Mr. W. G. Rawlinson; while a selection from the wealth of Mr. J. P. Heseltine's collection of drawings was obtained through the liberality of Mr. Heseltine himself, Mr. Otto Beit, Mr. Henry Van den Bergh, and Mr. Leopold Hirsch. Other acquisitions include a hitherto unknown first state of Durer's Melancolia; a rare set of the Four Evangelists of the Master E. S.; and Nicholas Hilliard's design for the Irish Great Seal of Queen Elizabeth. Recent art is represented by large collections of the work of W. H. Hooper, R. Lane, E. Whymper, and C. W. Sherborn, and a smaller group of lithographs and drawings by Charles Conder; while the museum is indebted to the liberality of many artists and publishers for accessions to its collections of contemporary art.

In the Department of Egyptian and Assyrian Antiquities a large number of miscellaneous objects have been acquired, notably a valuable tomb-group from a pre-dynastic cemetery in Upper Egypt; a collection of Meroitic antiquities from the Island of Faras; three cylinders of Nebuchadnezzar and Nabonidus; 214 tablets from Lagash, of the third millennium B.C.; a collection of scarabs and pottery from Gezer in Palestine; a number of cylinder seals of various periods; and an important series of eleven marble capitals from pillars found among the ruins of the monastery church of Saint Jeremiah, at Sakkarah, eighth or ninth century A.D.

The acquisitions of the Department of Greek and Roman Antiquities have mostly been in the category of small objects, including several fine gems, a plasma head of the emperor Claudius, an Etruscan statuette of Athena in bronze, with other bronze objects, and several vases of rare types. In addition, a large number of vases, statuettes, and fragments were obtained from the Greek Government in exchange for a cast of the Elgin Caryatid from the Erechtheum, to replace one previously presented by Lord Guilford, which had suffered damage. Additions were also made to the collection of casts.

The accessions to the Department of British and Medieval Antiquities and Ethnography range, as usual, over a wide field. Among them may be mentioned a bronze-gilt case of mathematical instruments, made by Bartholomew Newsam, probably for Queen Elizabeth; a series of pottery vessels from early Chinese graves; a series of Persian glazed pottery from the tenth to the fifteenth centuries; a steel figure of a peacock, said to be associated with the Yezidi worship; a fine silver bowl of Sassanian work; a large ethnographical series from Abyssinia, with the gold ring and silver cup of King Theodore; and some rare and important collections of early pottery from Peru and Argentina. The majority of these accessions were the result of gifts from many liberal friends of the museum.

The Department of Coins and Medals had perhaps the most remarkable accession of the year, in the two finds of Roman gold coins from Corbridge, on the Roman Wall, in 1908 and 1911. These finds, consisting respectively of forty-eight coins of the fourth century and 160 of the first and second, were claimed by the Treasury as treasure trove, and were transferred intact to the museum, where they will be kept together as the largest hoards of gold coins hitherto discovered in Great Britain. Other important accessions included the Bleazby collection of Mohammedan coins of Afghanistan, and a fine medal in lead by Pisanello.

Gifts of museum publications, including reproductions of prints by Old Masters, and sets of electrotypes of British Historical Medals, have been made to many free libraries, museums, and art schools throughout the United Kingdom, and to certain libraries and institutions in the overseas Dominions and in foreign countries; and similar gifts have been received in return.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Amersham.—Isolation hospital. Mr. Willes, architect.
Aylesbury.—Electric Lighting Central Power Station.

CHESHIRE.

Chester.—St. Werburgh's R.C. Church: completion (£4,500). Messrs. Kirby (F.R.I.B.A.) & Sons, architects, 5 Cook Street, Liverpool. Messrs. W. Fleming & Co., contractors, Liverpool Road, Neston. Shop premises, Bridge Street. Messrs. W. T. Lockwood (F.R.I.B.A.) & Son, architects, 88 Foregate Street.

CUMBERLAND.

Carlisle.—Thirty garden-city houses, Wigton Road. Messrs. Pepler & Allen, A.R.I.B.A., architects, 4 Arundel Street, Strand, London.

DERBYSHIRE.

Derby.—Borough Asylum: additions (£3,500).
Sawley.—Public Elementary School for 350 places.

DEVON.

Devonport.—Workhouse: Infirmary and Mortuary additions and alterations. Mr. C. Cheverton, architect, 64A Chapel Street.

Exeter.—Empire Theatre: enlargement.

DORSET.

Swanage.—Electric Lighting Generating Station, Court-hill.

DURHAM.

Birtley.—Public Elementary School for 400 places.
Spennymoor.—Six houses, South Terrace, for Mrs. Tighe.
Thornley.—Twelve aged mineworkers' homes.

ESSEX.

Braintree.—Two houses, Grenville Road, for Mr. G. Hunnabell.

Dagenham Dock.—Mechanics' workshops, stores, &c., for the Union Cable Factory.

Hornchurch.—House, Mill Park Avenue, for Hornchurch Real Estates Co., Ltd.

House, Sylvan Avenue, for Mr. W. L. Horwood.

Rochford.—Workhouse: laundry extension (£2,700).

Upminster.—Two houses, Hall Lane, for Emmanuel College, Cambridge.

Two houses, Howard Road, for Messrs. W. P. Griggs & Co.

Wickford.—County Schools (£2,400). Mr. F. Whitmore, County Education architect, 73 Duke St., Chelmsford.

Witham.—Cottages and new buildings, Howbridge Hall and Dengie Farms. (Apply Mr. J. H. Gould, Shire Hall, Chelmsford.)

GLOUCESTERSHIRE.

Peworth.—Ten houses (£1,700). Mr. E. Holloway, Council surveyor, R.D.C. Offices.

HAMPSHIRE.

Bournemouth.—Meeting Hall, Alma Road, for Mr. H. W. Lovell.

Lansdowne Hotel: additions, for Messrs. Eldridge, Pope & Co., Ltd.

"Hume Towers," Branksome Wood Road: additions, for Sir W. E. Cooper.

Auction Mart, The Square: alterations as warehouse for Mr. F. H. Hankinson.

St. Cuthbert's Schools, Belle Vue Road: additions for Miss Williamson.

Southampton.—Holy Trinity Church.

St. Mary's (Parish) Church: Spire (£2,200).

Isolation Hospital: pavilion (£6,300). Borough engineer.

Winchester.—Public Baths, North Walls (£2,500).

Royal Hants County Hospital: additions and alterations (£5,750).

HEREFORDSHIRE.

Ross.—Liberal Hall, Cantilupe Road.

LANCASHIRE.

Bolton.—Nine houses, Normanby Street, for Messrs. Hughes Bros.

Houses off Tudor Street, for Mr. T. Woods.

House and shops, Ainsworth Lane, for Messrs. Leigh Bros., Ltd.

Mill, Bury Rd.: additions, for Messrs. Rusden & Co.

Mill, Cross Street: additions, for Messrs. Johnson, Hodgkinson & Pearson, Ltd.

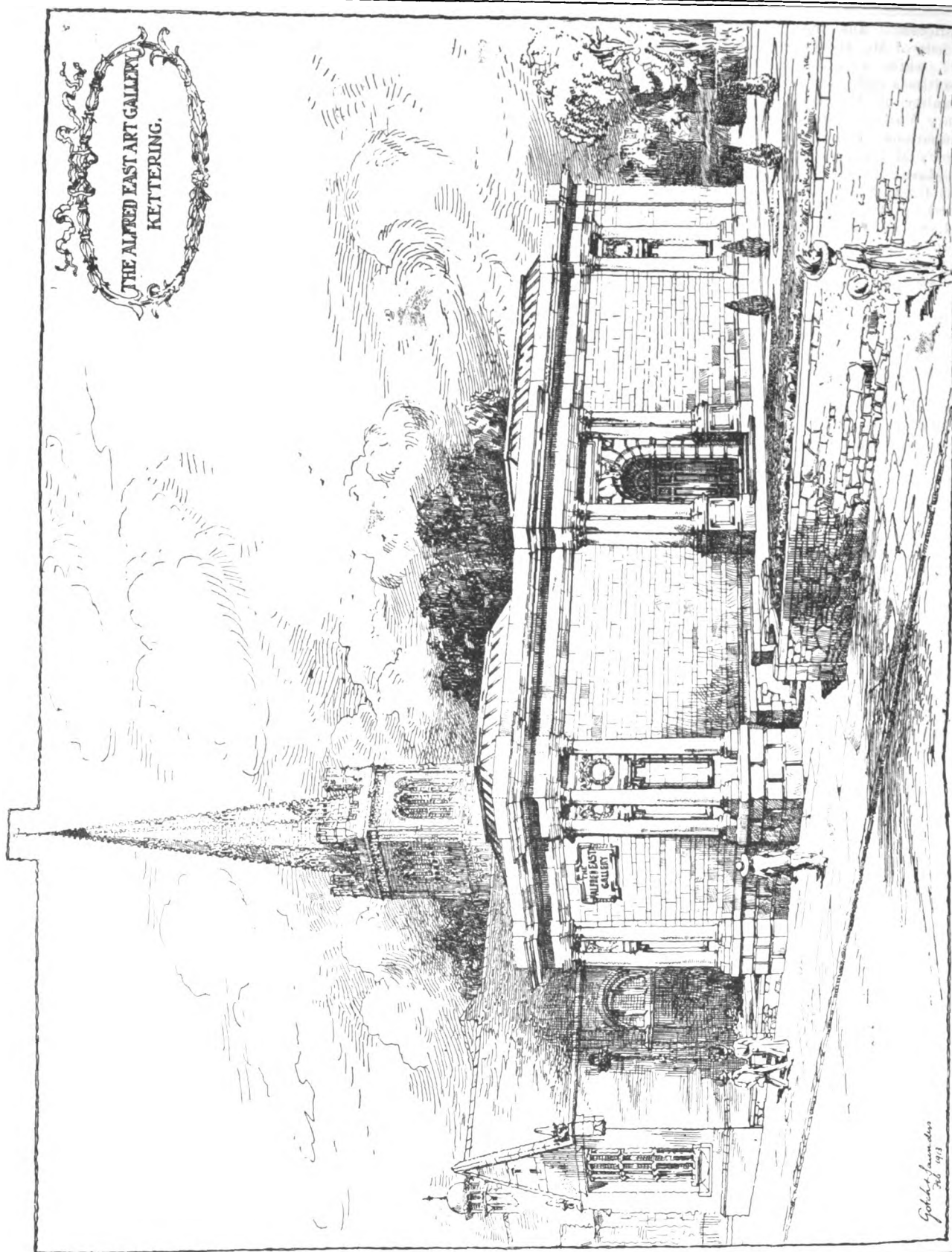
Sunnyside Mills, Barrier Street: Weaving Shed, for Messrs. Tootal, Broadhurst, Lee & Co., Ltd.

Cotton Store, Back Maple Street, for Messrs. Cannon Brothers.

Works, Mortfield Lane: additions, for Messrs. Cross & Co., Ltd.

Works, Nelson Street: additions, for Messrs. Entwistle & Gass, Ltd.

Westhoughton.—House, New Brook Road, for Mrs. E. Bullough.

**ENGLAND—continued.****LINCOLNSHIRE.**

Caistor.—Hospital: additions (£1,800).

Crowland.—Wesleyan Church (accommodation for 500). £3,000. Also Schools.

East Barkwith.—Four working-class cottages.

Lincoln.—House, shop and stables, Mildmay and Vere Streets, for Mr. G. Smith.

Grain Store, Brayford North Wharf, for Messrs. H. & J. G. Elsey.

Store, Firth Road, for Messrs. Ruston, Proctor & Co.
Sleaford.—"The Queen" P.H., Westgate: additions and alterations.

MONMOUTHSHIRE.

Bedwas (near).—C.M. Vestry, Thomastown. Mr. J. T. Jenkins, architect. (Also at Fairfield House, Porth.)

Ebbw Vale.—Twelve (or more) houses, Badminton Grove. Messrs. W. Harris & Son, architects, Bank Chambers, Bargoed (and Tredegar).

NORFOLK.

Holt.—Gresham School: chapel (£12,000). Messrs. Simpson & Ayrton, R.I.B.A., architects, 3 Verulam Buildings, Gray's Inn, London.

NORTHAMPTONSHIRE.

Crick.—Public Elementary School for 150 places.

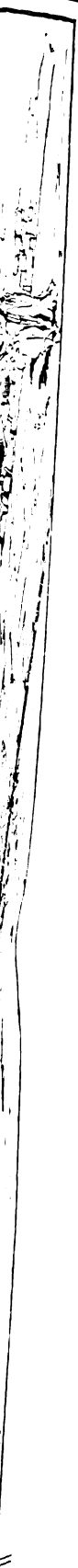
NORTHUMBERLAND.

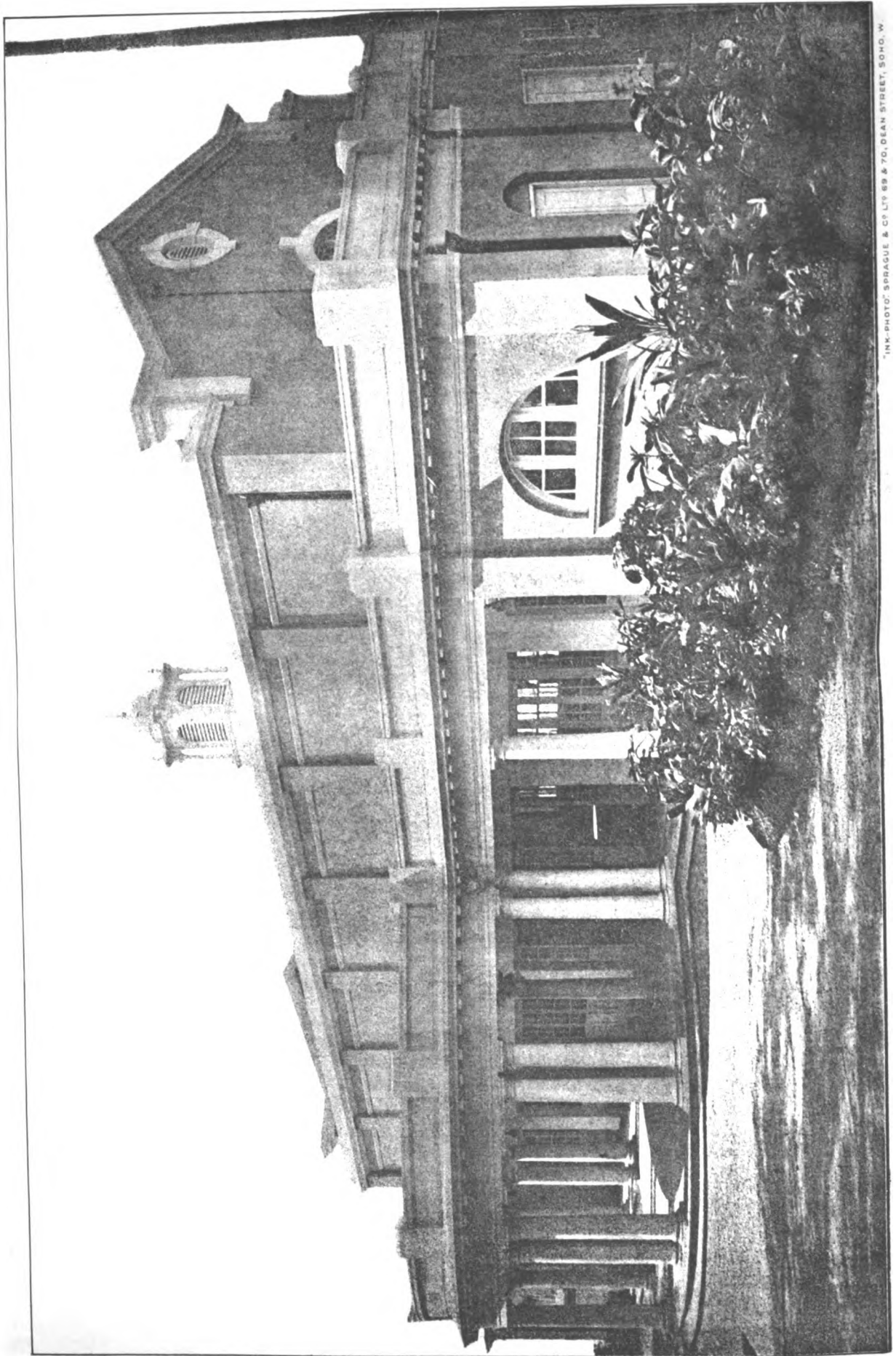
North Shields.—Children's Homes, Tynemouth, for the Board of Guardians. Mr. W. Stockdale, A.R.I.B.A., architect, 81 Howard Street.

Scotswood.—St. Margaret's Church for 600 sittings (£6,000). Messrs. Hicks & Charlwood, R.I.B.A., architects, 67 Westgate Road, Newcastle-on-Tyne.

NOTTINGHAMSHIRE.

Mansfield.—Fire Station. Mr. T. P. Collinge, Council surveyor, Town Hall.

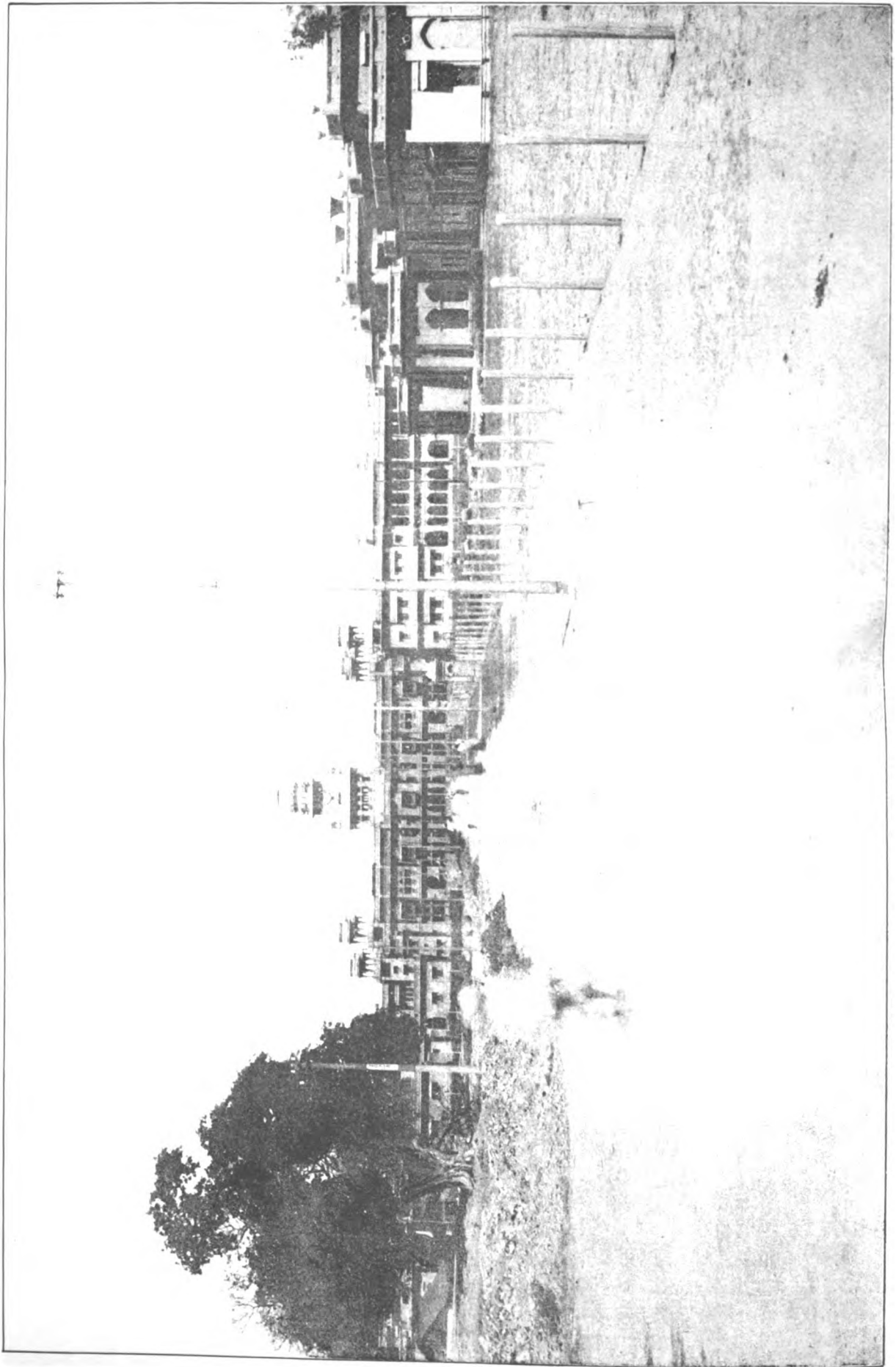




NEW PAVILION, GOVERNMENT HOUSE, BOMBAY
MR. G. WITTET, Architect

"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

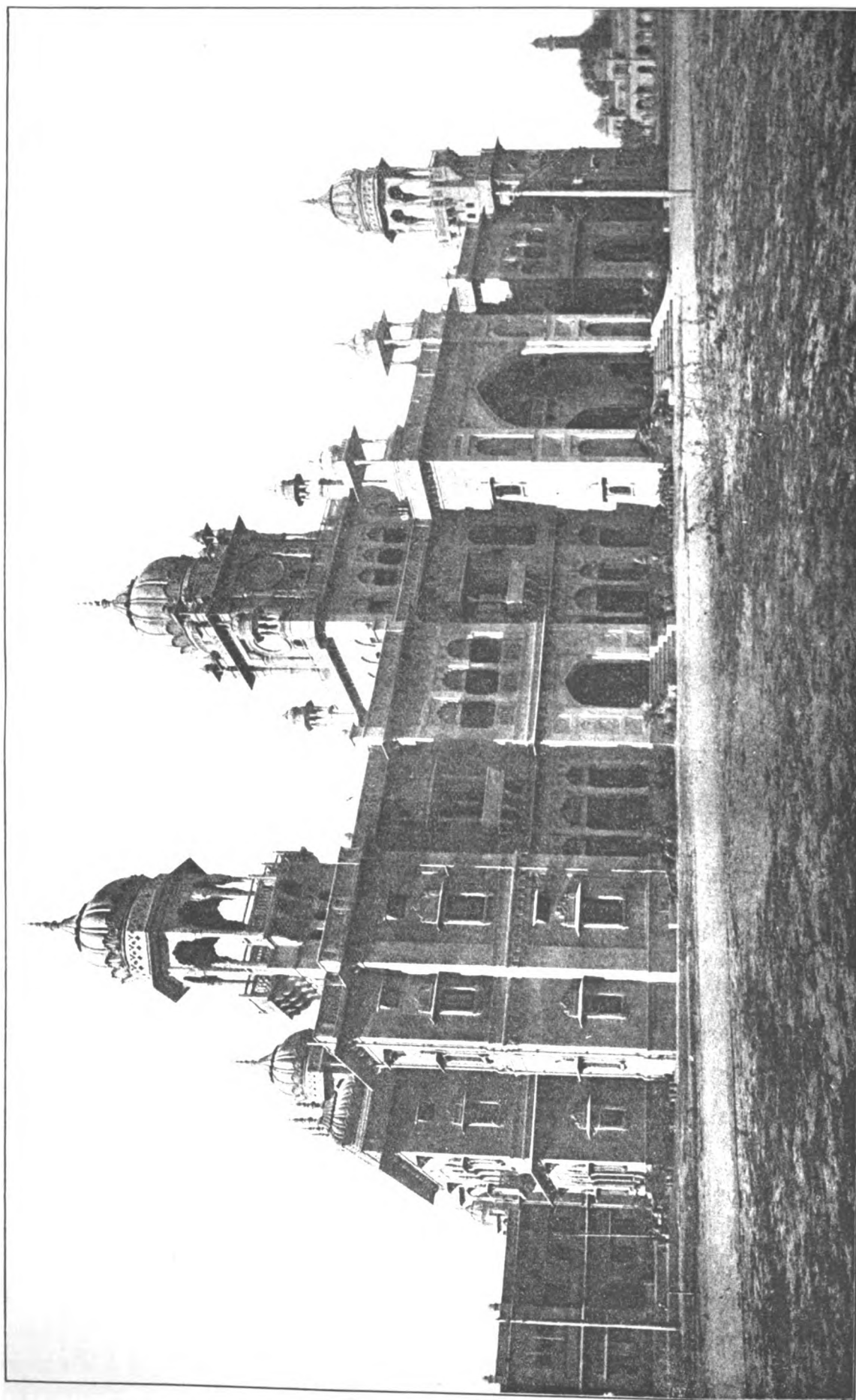
PAVILLON, GOVERNMENT HOUSE, BOMBAY



THE PHOTO SPRAGUE & CO. LTD. 69 & 70 DEAN STREET SOHO, W.

MEDICAL COLLEGE, LUCKNOW, GENERAL VIEW.
Col. Sir SWINTON JACOB, K.C.I.E., Architect

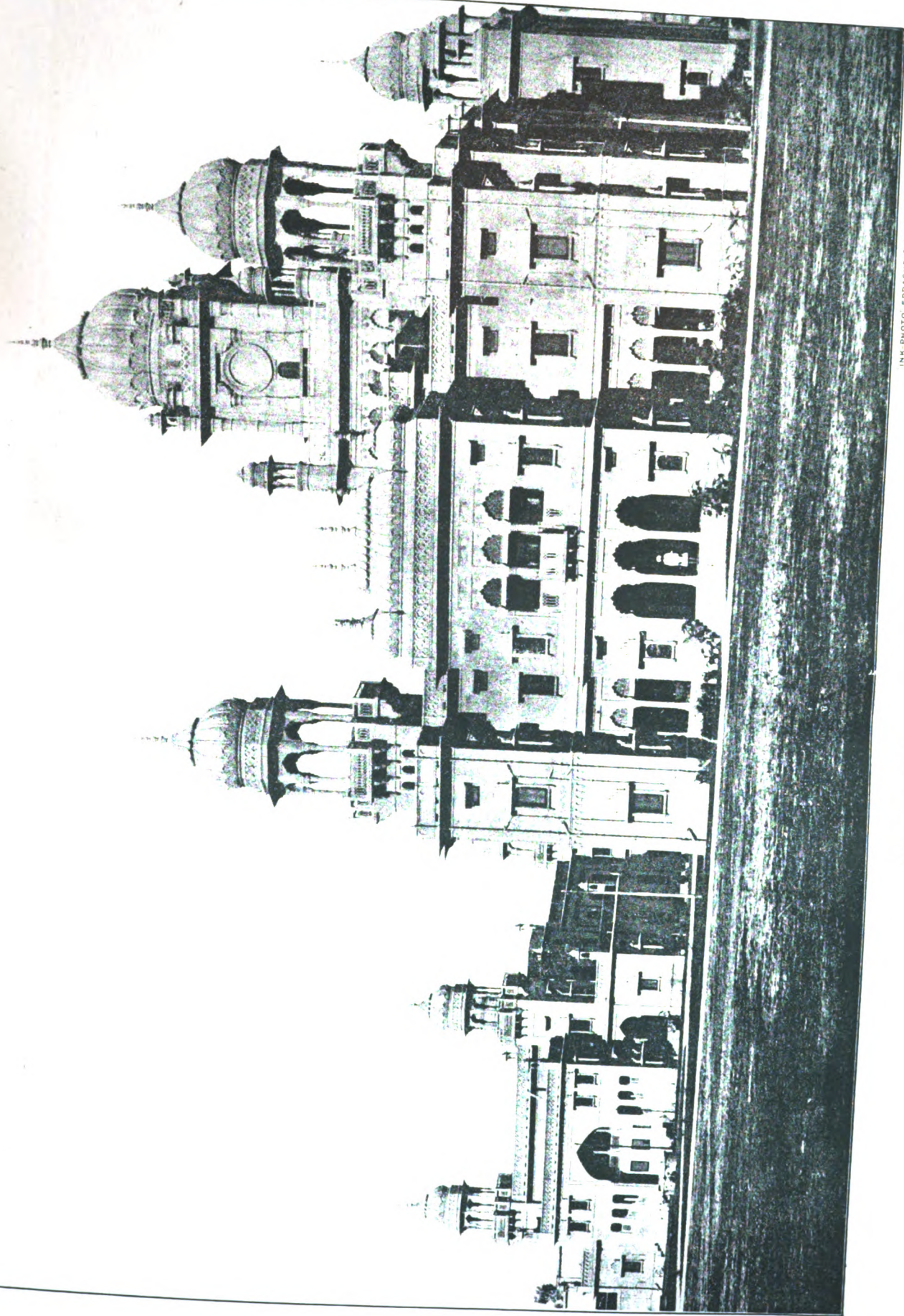
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

MEDICAL COLLEGE, LUCKNOW, N.E. VIEW.
Col. SIR SWINTON JACOB, K.C.I.E., Architect.

The Architect, Aug. 15th 1913.



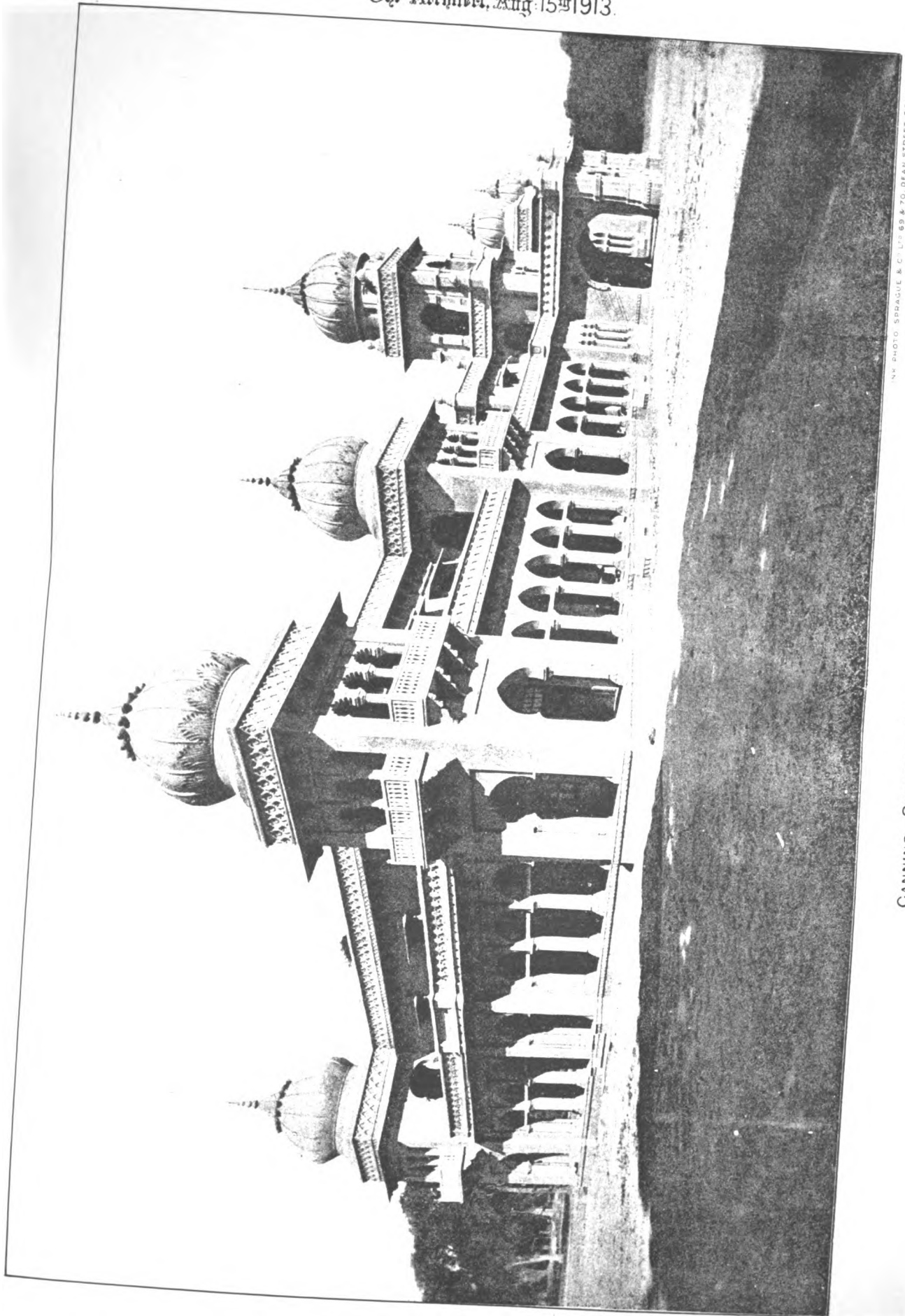
MEDICAL COLLEGE, LUCKNOW, S.E. VIEW.
Col. Sir SWINTON JACOB, K.C.I.E., Architect.

INK PHOTO SPRAGUE & CO. L.V. 69 & 70, DEAN STREET, CHICAGO, W.

EDICAL COLLEGE, LUCKNOW, N.E. VIEW.
Col. Sir SWINTON JACOB, K.C.I.E., Architect.

INK PHOTO SPRAGUE & CO. L.V. 69 & 70, DEAN STREET, CHICAGO, W.

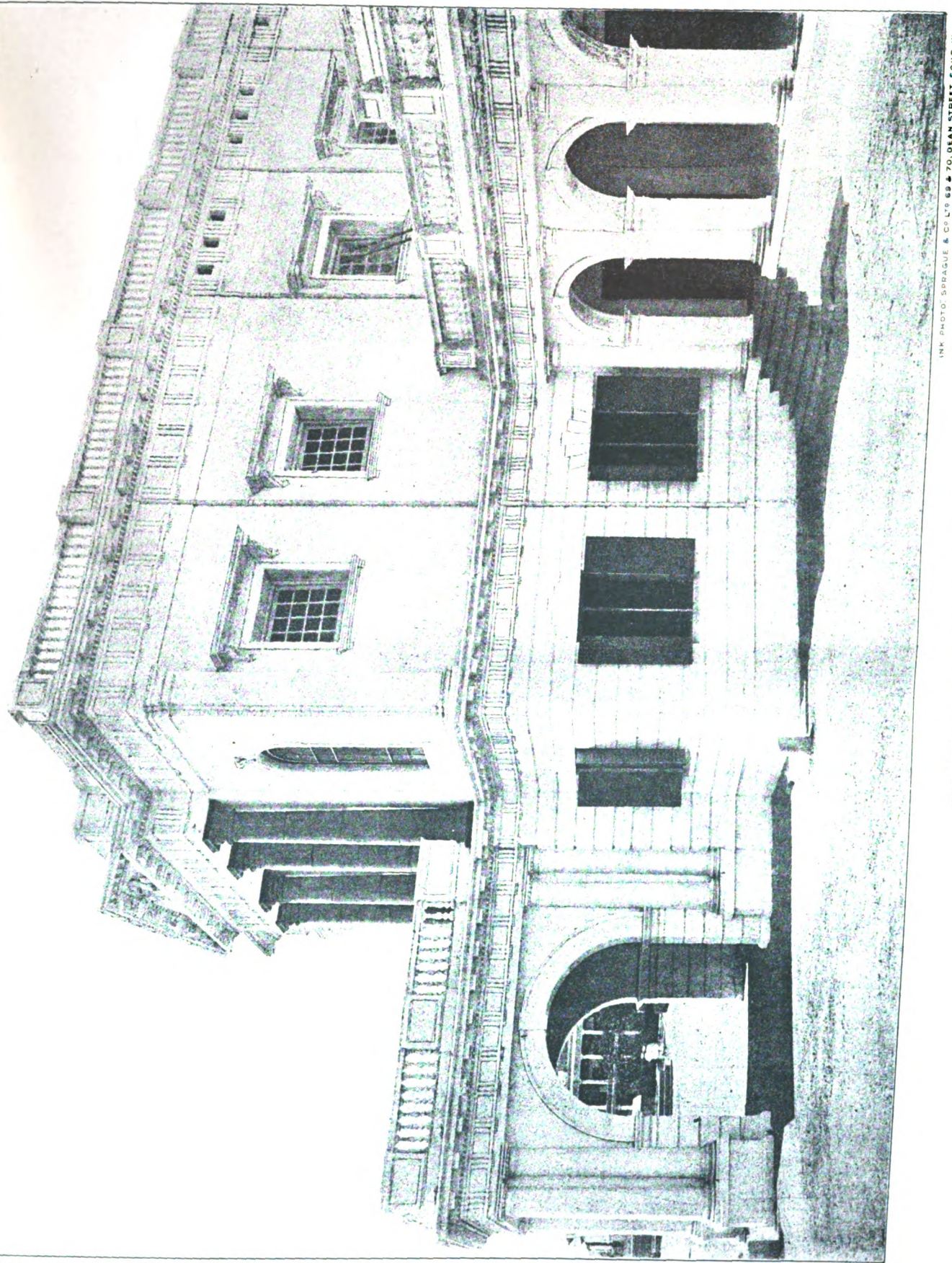
The Architect, Aug. 15th 1913.



N.W. PHOTO SPRAGUE & CO. L^{ts} 69 & 70, DEAN STREET, SOHO, W.

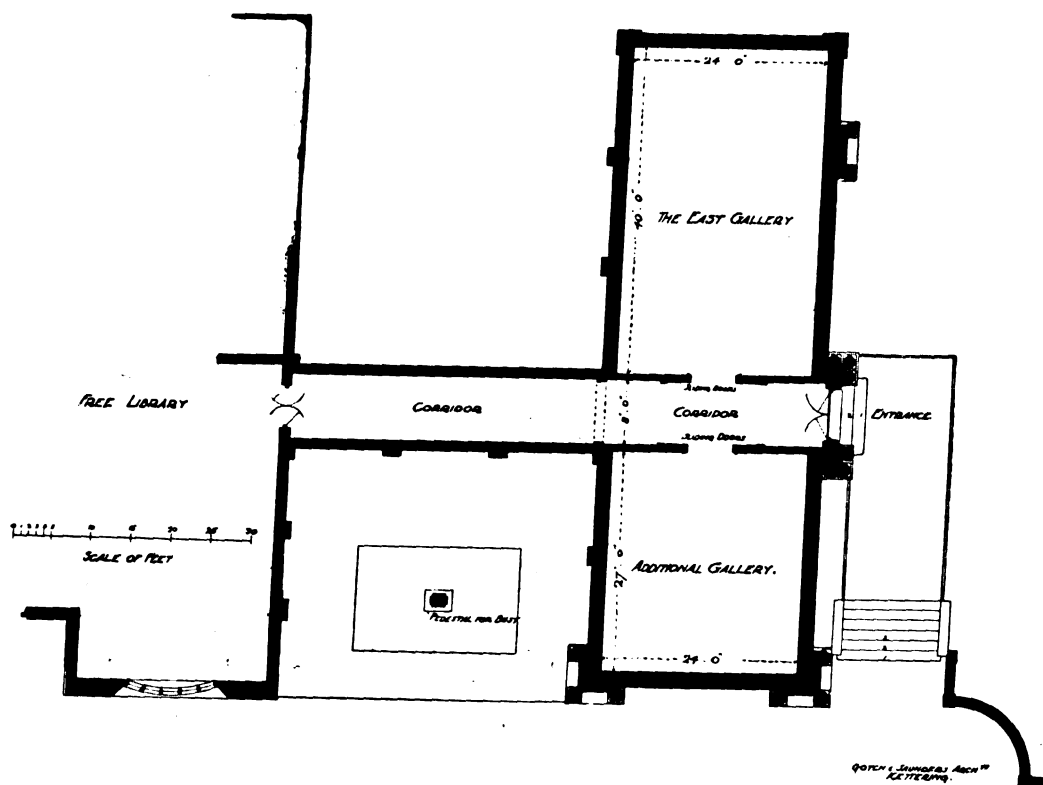
CANNING COLLEGE, LUCKNOW: PHYSICS BLOCK.

The Architect, Aug. 15th 1913.



INK PHOTO: SPRAGUE & CO. L^{ts} 69 & 70, DEAN STREET, SOHO, W.

NEW COUNCIL CHAMBER, MADRAS
Mr. W. H. NICHOLLS, Architect



ALFRED EAST GALLERY, KETTERING.—PLAN.

ENGLAND—continued.

SHROPSHIRE.

Highley.—P.M. Chapel (£1,200).

Wellington.—Bakery premises (£2,000). Mr. W. F. Edwards, architect, 1 Newhall Street, Birmingham.

Mr. A. Roper, contractor, Wrekin Road.

Twenty-two working-class houses, Watling Street (£3,850). Mr. Riley, Council surveyor.

STAFFORDSHIRE.

Gnosall.—Infants' Council School.

SURREY.

Farnham.—Five working-class cottages (£1,100). Mr. A. J. Stedman, architect, South Street Chambers.

Mr. W. J. Wilkinson, contractor.

Fourteen cottages, Weydon Hill Road. Mr. Stedman (as above), architect. Mr. Eyles, contractor.

Reigate.—Grammar School (£11,000).

Richmond.—Congregational Lecture Hall and Sunday School, Sheen. Messrs. Withers & Meredith, F.F.R.I.B.A., architects, 50 Cannon Street, London. Messrs. G. Parker & Sons, contractors, 124 Sumner Road, Peckham, London.

SUSSEX.

Horsham.—Asylum: alterations (£4,700). Mr. H. W. Bowen, County surveyor, County Hall.

North Chapel.—Public Elementary School, for 130 places.

WORCESTERSHIRE.

Offenham.—Twenty-six houses (£4,300). Mr. Holloway, architect.

YORKSHIRE.

Brighouse.—Store for the Co-operative Society. Mr. A. G. Sladdin, architect, 39 Briggate.

Goldthorpe.—Church.

Liversedge.—Liberal Club-house, Hightown.

Sheffield.—Public Elementary School for 800 places.

WALES.

Llanelly.—Municipal dwellings. Mr. Rogers (of Morriston), contractor.

Railway Station (G.W.R.): alterations (£4,000).

Penarth.—Cinema Theatre. Mr. L. Robertson, F.R.I.B.A., architect, 20 Working Street, Cardiff.

Pontardawe.—Public Hall: additions and alterations. Mr. W. B. Rees, architect, 3 Dumfries Place, Cardiff.

Skewen.—Home for feeble-minded, for the Neath Board of Guardians.

SCOTLAND.

Aberdeen.—Premises, Berryden Road: additions for the Northern Co-operative Co., Ltd. Messrs. Wilsons & Walker, A.A.R.I.B.A., architects, 181a Union Street.

Arbroath.—Smallpox and tuberculosis Hospital, Little Cairnie. Messrs. J. & R. W. Sievwright, contractors.

Cambuslang.—Buildings, Halfway, for the Gilbertfield Co-operative Society, Ltd. (£3,000).

Gateside Public School (£16,000).

Dundee.—Workshops, King's Road, for Mr. David Stewart.

Dunfermline.—Four cottages, Harrickbrae, for Sir W. Robertson.

IRELAND.

Shillelagh.—Twenty-three cottages, for the R.D.C. Council engineer.

ALFRED EAST GALLERY, KETTERING.

THIS gallery has been erected primarily to house the fifty or so pictures which Sir Alfred East, R.A., offered to his birthplace. A description of it in connection with the formal opening ceremony appeared in our issue of last week. It may be repeated, however, that the architects are Messrs. Gotch & Saunders, of Kettering.

PATENT SPECIFICATIONS PUBLISHED
AUGUST 7, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 9,012. April 16, 1912.—Francis Schaeffer, 40 Wendell Road, Askew Road, Shepherd's Bush, W. Apparatus for heating water.

11,608. Nov. 15, 1912.—W. G. Kent, 199 High Holborn, W.C. Controlling the flow of water in mains.

11,754. May 17, 1912.—Dated under International Convention June 8, 1911. Vereinigte Chemische Fabriken Landau, Kreidl, Heller & Co., 5-9 Sebastian-Kohlgasse, Vienna XXI. Manufacture of white enamel.

16,115. July 10, 1912.—Wm. Phillips, Scarrow Scant, Haverfordwest. Coupling means for facilitating the repairing of water and like taps under pressure.

16,487. July 15, 1912.—J. I. Robin, 121 Bollo Bridge Road, Acton, W. Bunsen burners.

16,858. July 19, 1912.—V. J. Engert, Moulding Mills and Frame Works, Three Mills Lane, Bromley-by-Bow, E. Floor coverings (imitation of parquetry work).

17,084. July 23, 1912.—Wm. Logan, 6 Mersey Road, Rockferry, Birkenhead. Device for holding doors in open position.

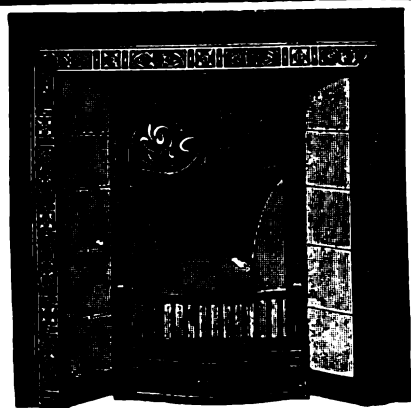
19,468. Aug. 26, 1912.—Harold Moorcroft, of Marsden Tiles, Ltd., Dale Street, Burslem, and Herbert Clarke, 74 Pinnox Street, Tunstall, Staffs. Tile presses.

PEN-YR-ORSEDD

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

SLATE QUARRY CO., Ltd.,

Supply Best and Seconds Red and Purple

SLATES**TO MERCHANTS AND THE TRADE.**

No. 73 REGISTER.

Fletcher, Russell & Co., Ltd.

Manufacturers of

MANTELS, OVERMANTELS, COMBINATION MANTEL
REGISTERS, SQUARE REGISTERS and INTERIORS
WITH BRASS or COPPER CANOPIES, GAS and COAL
RANGES, YORKSHIRE RANGES, CURBS, LAVATORY
STANDS, GAS STOVES, GAS COOKING RANGES,
RADIATORS, WORKSHOP AND LABORATORY
APPLIANCES, &c.

WARRINGTON:
Palatine Works.

MANCHESTER:
130-132 Deansgate.

LONDON:
134 Queen Victoria St.

BRUSSELS:
20 Rue T'Kint.

W. M. DUNCAN TUCKER & SONS, LD.

TELEPHONE
TOTTENHAM.

TOTTENHAM. N.

TELEGRAMS
"HORTICOLE
LONDON"

JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll. Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 " Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs. Triple-ply - 90 lbs.
Double-ply - 65 lbs. Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

20,210. Sept. 5, 1912.—Thos. Briggs, Prospect Hill, Sunnyside, Darwen, Lancs. Chimney tops or revolving cowls.

20,957. Sept. 14, 1912.—D. D. McLellan, 31 Broomhill Terrace, Partick, Glasgow. Astragal bars for roofs and sides of buildings.

23,071. Oct. 9, 1912.—F. C. Bentley, St. Dunstan's College, Catford. Fire extinguishing appliances.

24,891. Oct. 30, 1912.—Josef Neyer, 8 Erikastr, Zurich. Flushing closets.

25,112. Nov. 14, 1912.—T. R. Castle, of 12, and T. R. McDowall, of 11 Cormont Road, Camberwell, S.E. Glazing bars.

26,948. Nov. 23, 1912.—G. R. B. Middlecoat, 21 King's Park Road, Southampton. Apparatus for heating water by electricity.

28,912. Dec. 16, 1912.—Firm Industriele Maatchappij Van F. J. Stulemeijer & Co., and Chas. Stulemeijer, of Breda, Holland. Wooden mould scaffolding with an internal working platform for use in connection with the erection of concrete or ferro-concrete superstructures.

29,285. Dec. 19, 1912.—W. M. Still & Sons, Ltd., 29 Charles Street, Hatton Garden. Steam-heated radiators.

1,219. Jan. 15, 1913.—B. O. Sole, 107 Marques del Duero, and J. G. Castella, 383 Consejo de Ciento, Barcelona. Dividing instruments for carpentering, drawing, and the like purposes.

2,495. Jan. 20, 1913.—Dated under International Convention Feb. 3, 1912. B. de Bas, 239 Laan van Meerdervoort, The Hague, Holland. Cement brick or artificial stone blocked with a surface layer formed in relief, ribbed or imbricated and worked wet, and process for the production thereof.

3,690. Feb. 12, 1913.—Firm Mombel-Bossart et Fils, 47 rue des Palais, Brussels. Pavement lights, glazed gratings.

3,720. Feb. 13, 1913.—Wilhelm Weiler, 9 Hedwigstr, Munich. Artificial stone.

4,361. Feb. 24, 1913.—W. E. G. Eldridge, 59 Swansea Road, Reading, and J. S. Downing, Crown Works, Commercial Street, Birmingham. Supporting means or rests for shelves, partitions, and the like.

4,817. Feb. 25, 1913.—Dated under International Convention March 4, 1912. John Harrison, Malad, Onieda, Idaho, U.S.A. Gate hinges.

6,108. March 12, 1913.—C. G. A. Erikson, 19 Raven Road, Sheffield. Means for connecting to scaffolding poles or the like vertically.

6,473. March 15, 1913.—Geo. Wallace, Niagara Falls, Niagara. Floats for water-closet valves.

7,973. April 4, 1913.—E. T. Palmer, 112 Belvedere Road, S.E., and Godfrey Stone, 8 Cauldervale Road, Clapham Park, S.W. Extension ladders.

7,981. April 4, 1913.—Max Leser, 21 Farbergraben, Munich. Drying wet walls.

8,449. Jan. 14, 1913.—John Hubbard, Mellor Brook, near Blackburn. Means for securing door knobs to doors.

8,555. April 11, 1913.—Chas. Green, 21 Northdown Street, King's Cross. Wall papers.

11,272. May 14, 1913.—Wilhelm Dittschlag, 7 Bornholmer Strasse, Berlin. Jointless floors.

19,565. Aug. 27, 1912.—Dated under International Convention Aug. 28, 1911. J. J. Cosgrove, 232 Earlham Terrace, Germantown, Philadelphia, U.S.A. Water closet connections.

29,946. Dec. 30, 1912.—F. J. Morgan, "Claredene," Clare Road, Maidenhead. Taps or cocks.

2,856. Feb. 4, 1913.—H. H. Benthorne, "Norwood," The Avenue, Poulton-le-Fylde, Lancs. Reinforced concrete slabs, blocks, and the like.

4,478. Feb. 21, 1913.—S. R. Parkes, Pretoria Works, Willenhall, Staffs. Means or device for detachably securing chains, cords, or the like to window sashes.

7,033. March 25, 1913.—T. W. Ridley, 67 Marton Road, Middlesbrough, Yorks. Concrete piles.

7,836. April 3, 1913.—Friedrich Kohler, 67 Kronprinzenstr, Leipzig. Stone-wood floors.

12,037. May 23, 1913.—Dated under International Convention June 3, 1912. Peter Hesemann, Friedrichstr 116, Dusseldorf, Germany. Stay for downwardly opening top windows.

Any of the above specifications may be obtained from J. D. Roots & Co.

Correspondence

Steel Sheet Piling.

SIR,—Referring back to the article entitled "Modern Systems of Steel Sheet Piling," with sole reference to the Ransome interlocking steel piling, which appeared in your issue of July 4, our attention has been drawn to the following words on page 6 of that issue:—

"In this case the piles were each 48 feet long, the longest length of steel pile which we believe has ever been driven in one piece."

And further on: "Some of the difficulties to be encountered during the construction of these dams will be realised from the fact that they are placed in position to withstand a head of water of 28 feet."

And further on mentions that some of the piles were withdrawn after nearly five months and found practically equal to new.

We are only too glad to hear of successes obtained with types of steel sheet piling with which we are in competition, as every success so obtained helps all purveyors of steel sheet piling, just as, conversely, failures do none of us any good, the best types suffering in estimation because of inferior ones tried in (oft times misplaced) efforts to effect economies in weight of steel used. Your article referred to, however, does us a grave injustice, which we feel sure is unintentional.

We enclose you in original a letter from the contractors for the new dock, &c., contract at H.M. dockyard, Portsmouth, from which you will learn that over 1,000 tons of our "Universal" joist steel sheet piles were supplied in 62 feet lengths, and that these piles were driven in one piece to a depth of 62 feet from cope line to form a number of steel dams, the head of water in each case being over 45 feet and head on completed excavation inside dam 48 feet 8 inches. These piles have all been used (i.e. driven, withdrawn, and re-driven for other like dams on the same work) three to four times already, and the contractors purpose using them on some further work of a similar nature.

Thus our piles have used up a greater head of water than the longest length supplied or driven of Ransome piles, which have been mistakenly stated to be considered the longest lengths of steel piles ever driven in one piece. So far as mere driving is concerned, our piles were supplied in 85 feet lengths fishplated, and were driven to their full depth of 85 feet at Accra, West Africa.

Again, so far as withdrawing, &c., is concerned, our piles, which were used for Deptford Creek Bridge construction, were in 40 feet and 45 feet lengths, and after being in position for coffer dams for about two years were withdrawn and used again on work at the following places:—

1. Poplar.
2. Destructor works for condenser water intake.
3. Chertsey Lock reconstruction, and
4. Are at present being employed on Boveney Weir.

We could give many more instances of more important works than that mentioned in your article, but respect the value of space in your paper.

We are the pioneers of the steel sheet piling industry in this country, and can claim to have educated, by example, a number of our new competitors, and, as your readers are world-wide, we would be obliged at an early publication of this letter.—Thanking you in anticipation, yours faithfully,

THE BRITISH STEEL PILING CO.

August 11, 1913.

[COPY.]

August 8, 1913.

Messrs. The British Steel Piling Co., Ltd.,
Dock House,
Billiter Street, London, E.C.

Dear Sirs,—With reference to conversation between Mr. Garvie and writer about lengths of steel piles we have used on the contract, we beg to state we have bought from you over 1,000 tons of piles 62 feet long, 12 inch by 5 inch section. We have driven them to a depth of 62 feet from cope line to form a number of steel dams, the head of water in each case being over 45 feet, and head on completed excavation inside dam being 48 feet 8 inches.

Those piles have all been used three to four times already, and we purpose using them in some further work of a similar nature.—Yours faithfully,

W. MORRISON.

For Morrison & Mason, Ltd.

H.M. Dockyard, Portsmouth.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,
and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 2½ feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST — COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

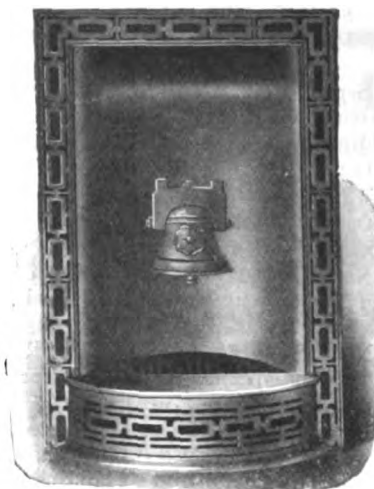
STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

GOLD MEDAL
"BELL"
GRATES

are in use all
the world over,
and giving the
greatest satisfac-
tion every-
where.

Illustrated
Catalogue on
application.



**Bell Range
& Foundry
Co.,**

16 Berners
Street,
London, W.,
and
Northampton.



The principal feature of
the CHAMPION CHIMNEY POT is
its magnificent updraft.

For many years the
'Champion' has been speci-
fied by LEADING ARCHITECTS,
and has sold in large numbers.

Architects speak highly of
its SMOKE-CURING and VENTI-
LATION qualities, and admit
it to be of excellent design.

Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.
Ltd., 105 Albion St., LEEDS.

"FLEXIBLE
AS A KID
GLOVE."

Sealure

the perfected paint
for outside and inside.

WRITE FOR 20 PAGE HANDBOOK (naming this paper) to
C. CHANCELLOR & CO. LTD. 15 CLEKENWELL, E.D. LONDON.

TO ARCHITECTS If you wish to give your
clients satisfaction, specify

**THE
"RATHBONE"
WALL-PAPERS**

To be seen at all High-class Decorators,
and at our spacious Showrooms.

**A. CHAPMAN & CO., Ltd.,
11 Rathbone Place, Oxford St., W.**

Telegrams: "Alfred Chapman, Ox., London." Telephone: Gerard 1909.

The Architect.

CONTENTS.

	PAGE
Architectural Association Excursion (illustrated)	165
Notes and Comments	168
Competition News	170
Illustrations :—	
Gare d'Orleans, Paris	170
Genoa Railway Station	170
Stockport Grammar School	170
St. Andrew's Church, Holborn	170
Architecture of Railway Stations (illustrated)	170
Cambridge School of Forestry	172
Architects' Grievances against the Model By-Laws	174
England's Acres : the Story of Land Ownership	177
Building Progress in the Provinces	179

	PAGE
New Town Hall, Cologne (illustrations)	180-1
Correspondence	183
British Patent Specifications	178

FORTHCOMING EVENTS.

Saturday, August 23.

Northern Architectural Association : Students' Sketching Club visit.

Wednesday, August 27.

Institute of Sanitary Engineers : Visit to Marconi's Wireless Telegraph Company's Works at Chelmsford.

Saturday, August 30.

Upper Norwood Athenæum : Visit to Roydon, Essex.

THE ARCHITECTURAL ASSOCIATION EXCURSION.—I.

AFTER a quiet Sunday spent in Rouen strolling about the city and renewing, for most of the party, their acquaintanceship with the churches and old houses that still remain in many of the side streets, and including, in particular, a visit to the ancient parish church of St. Laurent, now adapted as a special museum for the province of Normandy, and already containing the nucleus of a highly interesting collection of objects of Norman art and industry, although only opened in 1911, the regular programme of the excursion commenced on

MONDAY, AUGUST 11.

Leaving the hotel by motor at 8.45 A.M., the first halt was made at Croisset, where a picturesque collection of farm buildings now occupy the site of what was evidently at one time an important *manoir*, the only clearly recognisable remains of which are the chapel and a *colombier*, this being the first of the many that were to be seen during the week, and from the number of which the Excursion of 1913 has already been dubbed the "Dovecote Excursion." The *colombier* at Croisset is both picturesque and important, and contains nests for over two thousand pigeons, but their place has been taken by at least an equal number of smaller and ferocious animals whose generic name also commences with a "P," and from whose attentions many of the ardent students suffered considerably. This *colombier* is octagonal in form, built of stone, and roofed with tiles supported on rafters, which approximate very closely in their disposition to a circle and are surmounted by a *girouette* in lead. The farm buildings are of considerable age and built of chalk-like stone containing nodules of flint, of which the excursionists were to see many examples during the week. Flints and rubble stone are used as filling between the larger masses used as dressings, and typical Norman half-timbering is largely employed in the construction of the farm house and many of the buildings, amongst the most important of which is an interesting barn of considerable antiquity, and, from its size, possibly coeval with the original *manoir*. The internal timbering exhibits the usual disposition of nave and aisles surmounted by a lofty roof. The chapel is but small, and the party were unable to obtain admission, but it appears to be quite dismantled. Adjoining it is a large half-timbered house, which probably occupies the position of the original dwelling, if it be not indeed the remains thereof.

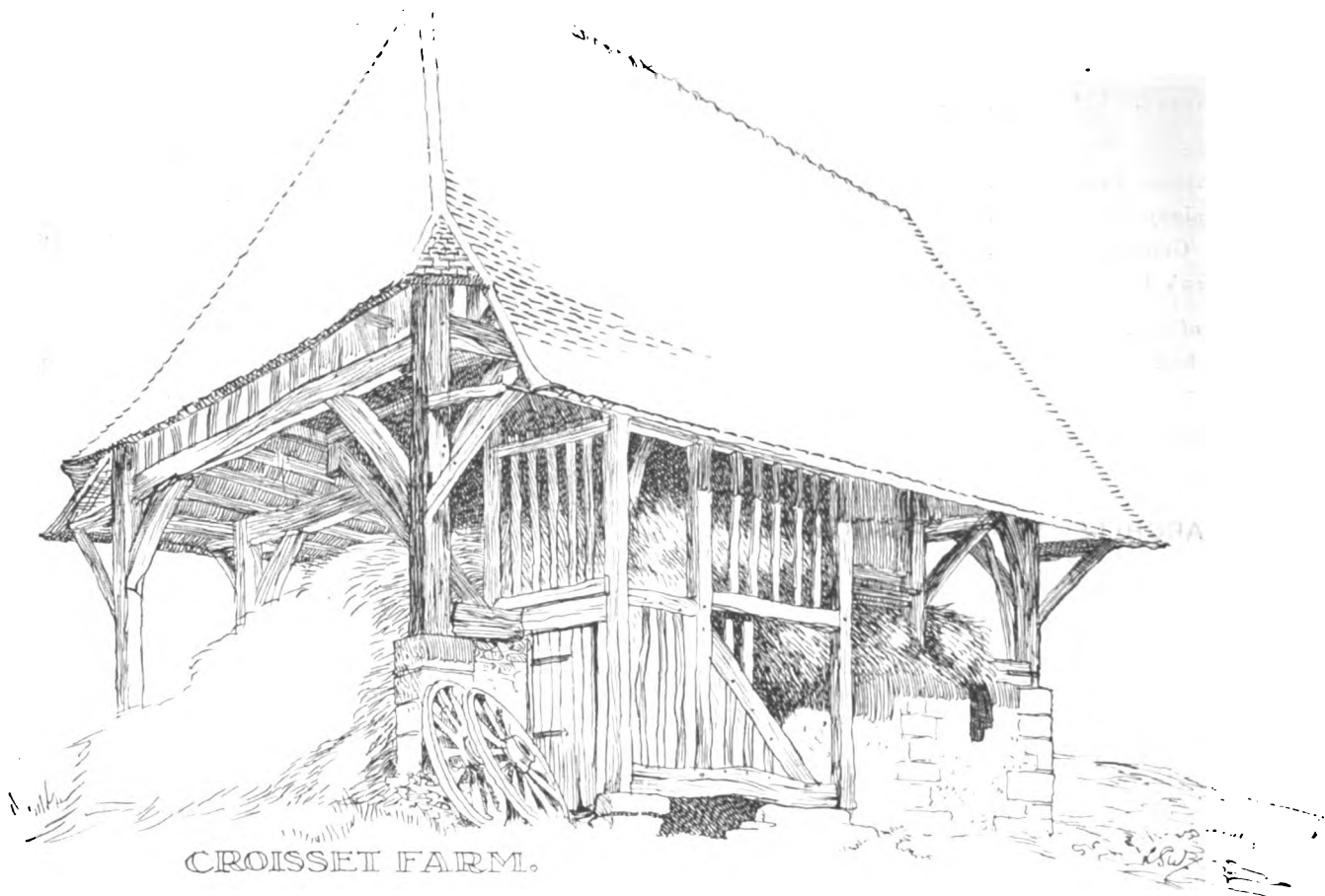
Leaving Croisset, the motor climbed up to the heights of Canteleu, where the chief attraction is the large and beautiful château built in the seventeenth century from

the designs of Mansart. This is constructed in red brick, with a basement and dressings of cream-coloured stone, surmounted by a high-pitched slate roof with lead *girouettes*. The red brick appears to have been at one time covered with whitewash by some owner who failed to appreciate the architect's original design, but time and weather have very largely removed this, leaving only a tempered modulation of the original colour. The interior contains much interesting work of the original date, as well as some rooms, including a fine salon, decorated in the Empire period. The château occupies the summit of the hill on which the village of Canteleu is placed and from it are obtained magnificent views over Rouen and the Seine valley. The terraces and gardens were laid out by Le Nôtre, but have been modernised. The church of Canteleu is chiefly remarkable for its incompleated west tower of fifteenth-century date, below which is a Galilee porch with fine flamboyant doorways, whose carving, however, is still unfinished, and in which are carved oak doors reminding one of the work at St. Maclou at Rouen. The incompleated tower is now surmounted with a slate broach spire, which, with a square turret on the south side, is both picturesque and graceful.

Leaving Canteleu, the party proceeded to Duclair for *déjeuner*, and here occurred the first of the many variations from the official programme. The intentions of the secretaries had been that after luncheon the excursionists should cross the river by the steam ferry and visit the interesting Château de Quatre-Vents, but the chauffeur absolutely refused to run the risk of taking his heavy car on board the *bac*. Accordingly, the Château de Quatre-Vents was omitted from the programme, and, instead, a visit was paid to the remains of the Abbey of Jumièges, where, although sketching was prohibited, a very interesting time was spent. The west front of the Abbey, flanked by its two towers, 52 metres high, is very impressive, as are also the remains of the interior of the eleventh-century church (1067), with its four double bays in the nave in the manner of Durham and the Rhenish Romanesque churches, by which it possesses a striking effect of dignity that is maintained by the remaining western wall of the central tower, 41 metres high, formerly, no doubt, like those at the west, surmounted by a spire. The choir is a ruin, but shows fragments of thirteenth-century work of excellent character. To the south there are the interesting remains of the early church of St. Pierre, constructed in the time of Dagobert, ruined by the Normans in 840, and rebuilt in 930 by Guillaume Longue-Épée. There is also the great chapel of St. Martin, with a boss in the vault representing St. Philbert, the first abbot of Jumièges, with a wolf at

his side. The chapter-house is rectangular on plan, with an apse of great size at the east end. Here have been dug up the tombs of some of the priors of the abbey. The residence of the proprietor includes the ancient porter's lodging and outbuildings of the Abbey, with

Leaving Jumièges, the party proceeded to Mesnil-sous-Jumièges, where a row-boat ferry exists across the Seine. Half of the party crossed by this and walked to keep the appointment made by the secretaries with the Comte de Malartic at the Château d'Yville, built from the designs

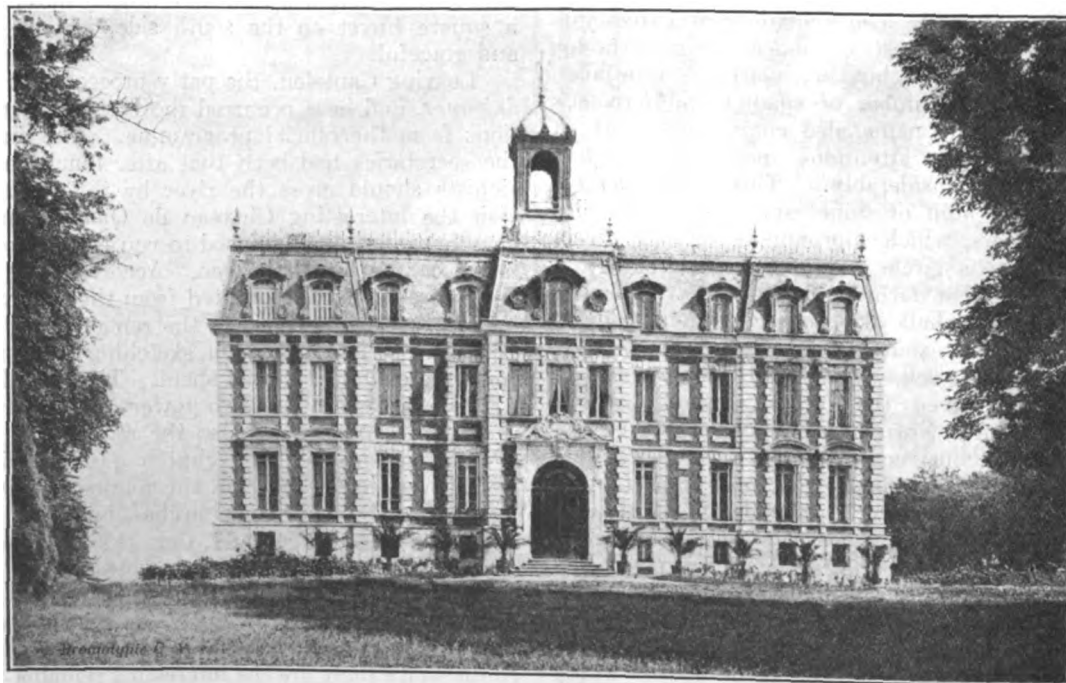


CROISSET FARM.

From a Drawing by Mr. SUTTON WOOD.

additions of fourteenth-century date, but, strict privacy being maintained, the excursionists were not able to view the interior. As sketching was not allowed in the Abbey grounds, one or two of the party made their way to the

of Jules Hardouin Mansart and completed in 1717 for Law, of South Sea Bubble fame, who, after the pricking of the Bubble, crossed the Channel and founded the Banque de France. Law employed Le Nôtre to lay out



THE CHATEAU, CANTELEU

parish church, a *monument historique* of the eleventh or twelfth century, with a choir partly rebuilt in the sixteenth century.

the gardens, and amongst the efforts of this creator of grand effects there is on the present occasion a remarkable avenue climbing the hillside to a temple high above

lesnil-sous-
the Seine.
ed to keep
the Comte
he designs

the house. The Château d'Yville is an excellent example of the younger Mansart's work, refined, well-proportioned, and restrained. Built of a warm yellow stone and still retaining not only its original sash bars but much eighteenth-century window-glass, the only decora-



THE ABBEY OF JUMIEGES FROM THE WEST.

tive feature is an Ionic colonnade on the entrance front. Being intended as a hunting box, the decorations of the key-stones are well-carved heads of dogs, boars, and other animals of the chase. The interior retains all its original treatment and much furniture of contemporary date. Here the visitors were received by the Comte and Comtesse and their family, most of whom speak excellent English. Learning that some of the party had been left behind, nothing would content the hosts but that motor-cars should be sent to fetch the others, in order that they might also partake of the pleasure of seeing the house and of afternoon tea. Thus a very pleasant ending was made to the first day's work. On the walk back to the ferry a half-timbered *manoir* of the fifteenth century was seen, but was scarcely of sufficient importance to merit much attention in comparison with the work of Mansart and Le Nôtre. The car being on the north side of the Seine, the last item on the original programme, the church of Sahurs, on the south side of the river, had perforce to be omitted.

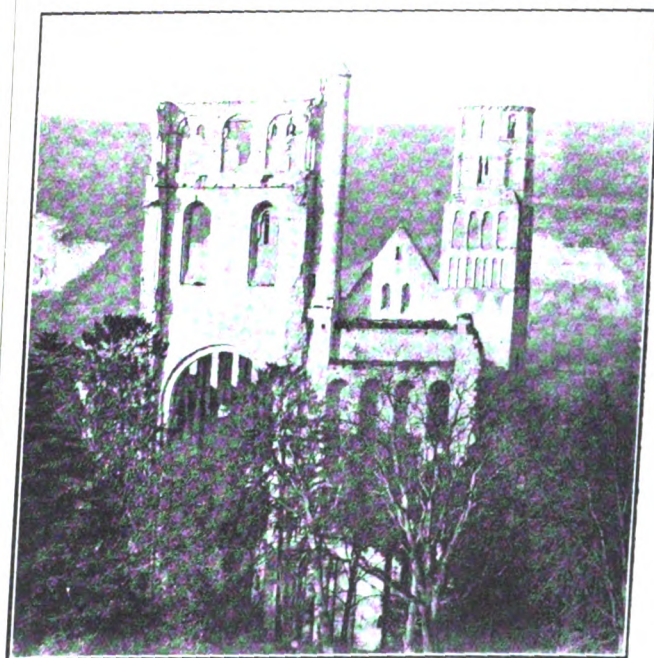
TUESDAY, AUGUST 12.

On Tuesday the first halt was made at the manufacturing town of Darnétal, three miles from Rouen, where the object of attraction was the church of Long-Paon, a *monument historique* of sixteenth-century date, which, although restored, has been so with care. The interior is very impressive, with nave and aisles of the same height as in a German hall-church, and with

enclosed chapels beyond the aisles. These latter are vaulted, the nave and aisles being covered with pointed barrel ceilings in wood with tie-beams and king-posts. The main arcade has pointed arches carried on circular piers, those to the quasi-transeptal position being wider than the normal, and ranging with north and south entrances, which are treated with magnificent porches having double doors separated by a central *trumeau*. The east end is terminated with an octagonal apse, and the whole church is an admirable model for a congregational arrangement, amply lighted by large windows in the external walls of the chapels. At the west end there is a Renaissance organ and gallery carried on Corinthian columns, and the pulpit, which is on the north side, is also of Renaissance date. The church externally gains much in effect by a considerable fall in the ground from west to east.

From Darnétal, the excursionists proceeded to Ry, a picturesque town in which the chief feature is the church, possessing a very fine Renaissance carved south porch in oak. There is also a good tomb of fourteenth-century date, and an altar with enclosing woodwork of the sixteenth century, as well as some restored screen work, apparently following closely originals of the sixteenth century. The church itself is small and of Norman date, save for a south transeptal chapel of the fourteenth century. The nave piers have a somewhat uncommon treatment for the period, being capless, with slightly chamfered square-section arches dying on to them. The low central Norman tower has a raised belfry in slate, surmounted with a broach spire also in slate. The west end has been rebuilt in red brick, so that the exterior does not possess great interest save for the south porch we have already mentioned, and of which we shall give an illustration next week. There are in the church some rather quaint eighteenth-century oak benches, and a good carved Renaissance pulpit.

Ry was probably selected by the organisers of the excursion as a possible place for *déjeuner*, after which the party retraced their route to Martainville, whose

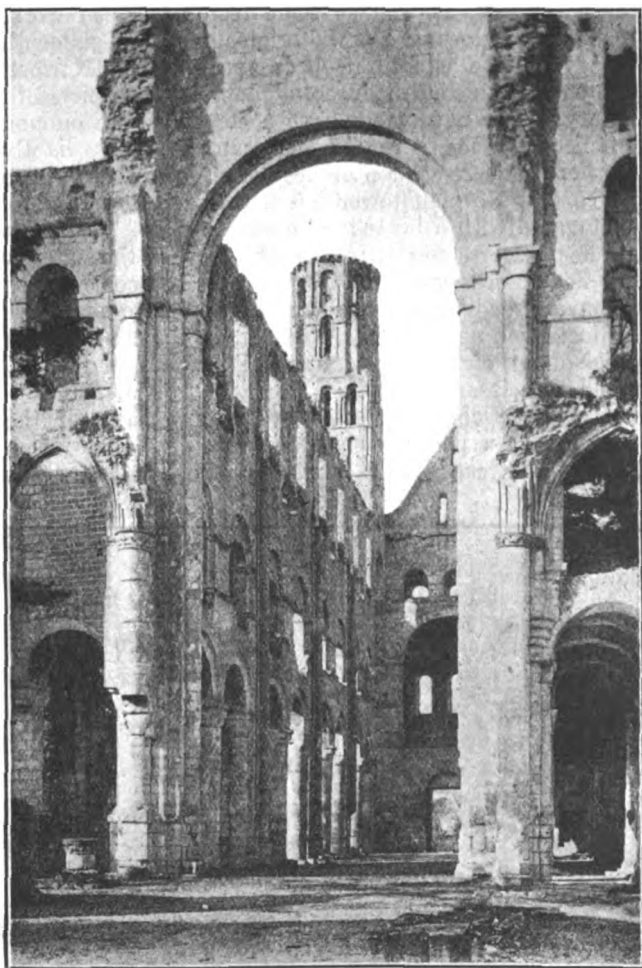


THE ABBEY OF JUMIEGES FROM THE EAST.

château had already been admired on the road to Ry. This château, dated 1483, although now in a sad state of dilapidation internally, was one of the finest buildings seen on the excursion. It is rectangular on plan, with a great circular tower at each angle covered with high pointed roofs. The entrance front has, above the central doorway, an oriel window, which is carried up to lead to a beautiful turret decorated with carvings. On the opposite flank of the building is a central octagonal pro-

jection containing the staircase, which also is carried up into a dominant turret. The château is built of brick with many curious designs in diaper, the dressings and dormers being in stone, but the most striking features of the exterior are the five magnificent chimney-stacks in brick which tower up above the roof, and are designed with a remarkable fertility of invention. The internal ruin is relieved by much panelling and many chimney-pieces of Renaissance date, not, perhaps, altogether remarkable for refinement in detail; particularly interesting are the fifteenth-century fireplaces in the upper storeys with hooded mantles from which are carried up, in fan-like brickwork, the support for hearths above. At one end an addition, which bears the date on the exterior 1662, has been made beyond the original building, and very probably indicates the period at which much of the internal Renaissance work was inserted.

From Martainville the party proceeded to Boos, the *manoir* of which preserves its famous *colombier* of sixteenth-century date, one of the finest examples of this class of building that exists in France. This *colombier*



THE ABBEY OF JUMIEGES.—INTERIOR OF NAVE LOOKING WEST.

is octagonal in form, the plinth, angles, strings and a circular magnificently moulded cornice being in stone. The brick panels are a perfect orgy of restless invention in the patterning of red and glazed bricks, and the upper storeys are further decorated with moulded brickwork and adorned by the insertion of a series of enamelled portraits of châtellains, châtellaines and pages in costumes of the fifteenth century. The tiled roof, which rests upon the circular cornice, has now, by the sagging between the rafters, obtained a further play of light and shade in assuming an irregular polygonal form. The length of each octagonal side is twelve feet, but great scale is given to the building by the small size of the bricks, which are 8 in. by 3½ in. by 1½ in. A drawing of this *colombier* will be included amongst our illustrations next week. The old *manoir* itself has been very much mutilated by

subsequent alterations, but one can still trace its arrangement on two storeys with a lofty hall on the upper, the waggon-boarded ceiling of which is still to be seen with its tie-beams and king-posts and moulded wall-plates. The remains of the traceried windows which lighted this hall and also those to the ground floor are sufficiently preserved to enable their original form to be understood, and their thirteenth-century date to be recognised. The well of the *manoir* still remains, and the excursionists were informed that its depth to the water level is 100 metres. The farm buildings are picturesque, and include a thirteenth-century barn. The church at Boos is of no great interest save for some early Renaissance stalls with miserere seats, having been much altered in the eighteenth century.

(To be continued.)

N.B.—In our next issue will be included drawings made during the excursion by Mr. Sutton Wood.

NOTES AND COMMENTS.

As the outcome of the deputation which was made some time ago to the Prime Minister by representatives of the professional societies and local government authorities on the importance of the improvement of the arterial road communication in Greater London, a circular has now been issued by the Local Government Board announcing that the President of the Board has consented to preside at a Conference of Local Authorities and others interested in the subject. Mr. Burns proposes that the Conference should take place in the autumn, but the precise date has not yet been fixed, and it is suggested that not more than one or two persons representing each Local Authority should attend the Conference, and, although not stated in the printed circular, we presume that a similar invitation will be extended to professional societies who were represented at the deputation.

The screen which has been erected around the south-west pier of the dome of St. Paul's has excited some apprehension that really serious danger had resulted to the fabric, but this screen is merely an enclosure to permit of the operations of the grouting machine being extended from the situations below and above the body of the church to those visible to the general public.

In the course of lectures to be held at the Royal Sanitary Institute and Parkes Museum in the months of September, October, and November next, intended primarily for sanitary officers, but open also to others, there are included several that would be of value to architectural students, and amongst the lecturers are included the names of Messrs. Alan E. Munby, M.A., A.R.I.B.A., A. Saxon Snell, F.R.I.B.A., Fred Osborne Smith, F.R.I.B.A., and Henry C. Adams, Assoc.M.Inst.C.E. Particulars of these lectures can be obtained from the Secretary of the Royal Sanitary Institute.

The expansion in the manufacturing industries of Coventry has accentuated the acuteness of the problem of housing and the demand for housing accommodation suitable for the working classes far exceeds the supply. The question may be asked why the demand is not met. From the point of view of the private owners there are three answers: (1) The fear that when the present high prosperity of the country declines houses may become empty; (2) the increased cost of land and buildings (including land taxes); (3) the practical exhaustion of local money for speculative building schemes. The first fear mentioned is probably exaggerated. Coventry has now so many stable trades that it is extremely improbable the inhabitants can ever again be comfortably housed with a less number of dwellings than exists. In Nos. 2 and 3 the real reasons are to be found. Builders find immense difficulty in raising money

for their enterprises because houses do not sell readily. Most mortgagees have enough of this sort of investment. Moneyed men are numerous at Coventry, but they do not seek land and houses as the best objects on which to place capital.

There remains the question whether the municipality will come to the aid of people who want cottages. At the present time the Corporation have provided 104 artisans' dwellings, and 100 more are in course of erection, all being in one district. The scheme has, so far, been self-supporting. If the present famine for houses continues it is certain that pressure will be brought to bear to induce the City Council to extend their building enterprise.

The publication of the eighth volume of the report on the census of 1911 affords information as to the statistics of housing in the population of the kingdom. From this we learn that 9 per cent. of the people are reported to be living in conditions that are officially described as "overcrowded," that is, they are living in tenements having more than two occupants per room. In the estimates of the census officers no account is taken of the size of rooms, though it is obvious that without information bearing on this point no accurate conclusions as to overcrowding can be reached. The bulk of the people—54 per cent.—occupy dwellings that give accommodation for each family in the proportions of one to two persons per room. During the twenty years from 1891 to 1911 a steady improvement took place in working-class housing conditions, and evidence of it is afforded by a comparison of certain figures of the last three censuses. Tenements of one and two rooms have declined in number, whilst those of three and four rooms have increased. It is evident that changes have taken place which are indicative of an advance in the standard of comfort, and hence, as there has been an unmistakeable decline in the number of houses built during the last few years, operative even in 1911 when the census was taken, there has resulted overcrowding.

The areas that contribute most to overcrowding are the rural portions of the agricultural counties and the urban portions of the industrial counties, but, taking the country as a whole, housing conditions are better in the rural and agricultural than in the mining and industrial areas. Though ordinary observation attests the accuracy of this broad statement, its truth is not always admitted. The statistics given in this report, however, make very clear how much better off as regards room accommodation are the dwellers in the predominantly rural parts of the country compared with the working classes in counties like Durham, Northumberland, and the West Riding, where overcrowding is still very prevalent.

Acting on the recommendation of the Sheffield Society of Architects and Surveyors, the Sheffield City Council has resolved that the requirements with regard to open space at the rear of buildings should apply to dwelling houses; that when a dwelling house is erected upon any upper storey of a building the open space required by the by-laws shall be provided upon the level of the storey; that in all cases the distance of the open space shall be governed by the height of that portion of the building which immediately abuts upon that portion of the space, but they have resolved that for the present the requirements as to open spaces should not be enforced in the case of buildings other than dwelling houses.

The introduction of new methods of building appears to be fruitful in the inception of trade disputes between the various old-established trades recognised by the unions. An instance of this has occurred at the building operations which are in progress at the Adelphi Hotel in Liverpool, where the exclusive right to fix concrete slabs is contended for both by plasterers and by brick-

layers. The principle of "one man, one job" causes difficulty when a new kind of job arises which may equally well be carried out by members of more than one trade. At present there are not sufficient concrete slabs to be fixed to provide a trade for concrete slab fixers, and from the point of view of the public and master builders it might, perhaps, be an advantage if the projected Amalgamated Society of Building Trade Workers were in existence. Such a society, with a representative council, could, we imagine, dispose of all such vexatious questions as are now constantly arising from the jealousy of sectional trades.

In a letter to the *Liverpool Courier* Mr. H. A. Smith, an architect of New York, praises the work which has been done by the Housing Committee of the City of Liverpool in its provision of municipal multiple dwellings, and the special point to which he directs attention is the use of outside staircases, or staircases having a free circulation of fresh air, a method that is now some thirty years old in England, but still striking to an American by reason of its non-adoption in the United States.

Whilst we can sympathise with the Devonshire artists and other lovers of the picturesque who are signing in large numbers an appeal which will presently be circulated among the landowners of the county asking them to discontinue the use of "the frankly hideous corrugated-iron roof," which is taking the place of thatch in many rural districts, it cannot be forgotten that thatch has its disadvantages, which, however, might not prevent its continued use, as they have existed in the past as much as in the present. The use of thatch, however, has now two other deterrents, at least, with which to contend—straw is now far more valuable and expensive than it used to be, and skilled thatchers have seriously decreased in number by reason of the decline of their trade. Naturally, in the petition it is pointed out that thatch is warm in winter, cool in summer, and that a well-thatched cottage remains snug and weather-proof for many years. The signatories further say: "All who traverse our country roads with a seeing eye will know of many a village and scores of cottages and farms the beauty of which has been ruined, or is being ruined, by the iron roof."

In a French paper, the *Liberté*, is described an archæological find of the greatest interest. At Mahdia, on the Tunisian coast, five or six years ago, some Greek sponge fishers noticed a strange mass of wreckage lying at a depth of 130 feet to the north of Mahdia Light-house. Amidst a jumble of timbers lay splendid marble columns, bronze statuettes, a superb life-sized boy's figure, and a Hermes of Dionysos, which they succeeded in bringing to the surface.

M. Merlin, the head of the Tunisian Antiquities Department, applied for and finally obtained various subventions, and the admiral commanding the Tunisian squadron sent a powerful tug and two torpedo boats to give assistance. It has now been ascertained that the sunken ship was a vessel of about 400 tons, 100 feet long, and 25 broad. She was laden with an extraordinarily heterogeneous cargo, not only blocks of marble, but bases and capitals for columns, effigies, statues, furniture, tiles, leaden piping, lamps, amphoræ, &c. Among the fragments were found figures of a demigod and a maiden and faun, which correspond almost exactly with those upon what is known as the Borghese vase dug up in Rome and now in the Louvre. The Hermes bears the signature "Boethos," the sculptor of the celebrated "Child with a Goose" of the second century B.C., and there are numerous other very fine specimens of old Greek sculpture among the treasures already recovered.

The bottom of the hold contains about sixty columns of blueish-white marble 13 feet high, which were probably one of the causes of the wreck of an evidently too

heavily freighted ship. All the inscriptions deciphered relate to Attica and personages of the middle fourth century B.C., and it might have been thought that the vessel dated from that period but for the Boethos statue and a lamp of a pattern only introduced into Attica at the end of the second century B.C. Some writing on lead ingots also is in the Latin of that epoch, and experts have concluded so far that the vessel was loaded in Attica for Rome, and probably the cargo was the spoil after the taking of Athens by Sulla in 86 B.C. Both Lucian and Pliny relate how Sulla pillaged Athens, and the former describes a wreck off Cape Malea of a ship full of works of Greek art, including a picture by Xeuxis. Rome's loss 2,000 years ago, however, becomes French gain, and soon travellers will be able to admire these priceless relics in the Bardo Museum at Tunis.

As was anticipated, the Revenue Bill was withdrawn by the Government in the last days of the Session and the building trade will still suffer from the decision in the Lumsden case. The fact that the Cabinet has not in this instance chosen to exert its practical omnipotence to remove a flagrant injustice to those who "invest" in bricks and mortar at home rather than in Marconis abroad is evidence that the Revenue Bill was no more than a window-dressing operation intended to catch votes rather than to remedy grievances.

COMPETITION NEWS.

ATHY.—The Urban Council have adopted the plans submitted by Mr. J. J. Bergin, Athy, for the carrying out of a second scheme of houses for artisans in the town. The cottages will be two-storey, and are to be built at an estimated cost of £150 each.

BOLTON-UPON-DEARNE.—The Urban District Council have decided to invite competitive designs for the erection of public baths, and to offer prize money to the amount of £50 in connection therewith.

ITALY.—The Savings Bank of the City of Verona have issued in English particulars of an international competition, by which they propose to seek the best possible design for head offices. The site is bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini; and the design should harmonise with, and be founded on, the general character of the Piazza delle Erbe. The cost of the building must not exceed 1,500,000 lire. Premiums of 30,000 lire and 15,000 lire are offered for the designs placed first and second respectively. The competition apparently closes in February or March next. Intending competitors should get into communication with the President of the Savings Bank, Via Garibaldi No. 1, Verona.

TENDRING.—The R.I.B.A. Competitions Committee desire it to be known that the conditions of the Cottage Homes Competition are not satisfactory, and are the subject of correspondence between the committee and the promoters.

ILLUSTRATIONS.

GARE D'ORLEANS, PARIS.—GENOA RAILWAY STATION.

THESE examples of modern Continental railway stations are described in the article by Mr. M. S. Briggs on "The Architecture of Railway Stations."

STOCKPORT GRAMMAR SCHOOL.

THIS school has been carried out from the designs of Messrs. Reginald H. Spalding, F.R.I.B.A., & Ernest G. Theakston, F.R.I.B.A., and the illustration is sufficiently explanatory.

ST. ANDREW'S CHURCH, HOLBORN.

THIS church, by Sir Christopher Wren, was built in 1686, on the site of an old dilapidated edifice, and its interior is rightly the subject of admiration. Amongst the notables of former days who were buried in the church or churchyard were John Emery, the comedian; Lord Wriothlesley, Dr. Henry Sacheverell, Henry Neele, the poet, and Joseph Strutt, author of "Sports and Pastimes of the People of England." Our illustration is reproduced from a water-colour drawing by Mr. Charles Bernard.

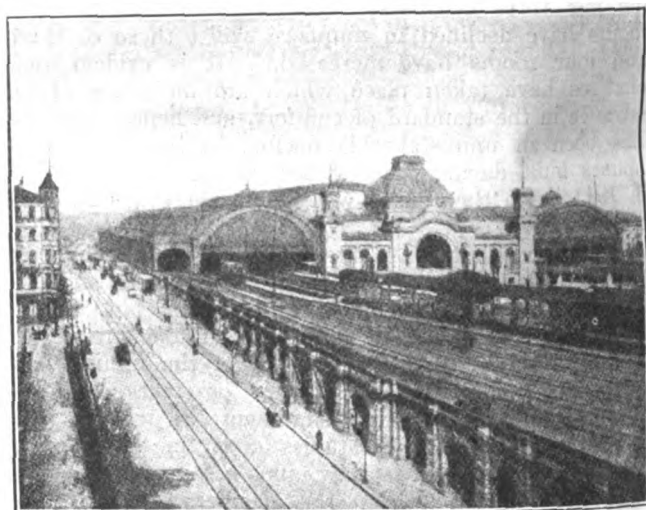
THE ARCHITECTURE OF RAILWAY STATIONS.

III.

IT is customary to compare English railway architecture very unfavourably with the palatial stations of Continental Europe, but the balance does not always lie with the latter. There is, in fact, very little to choose between them when their respective advantages and disadvantages are judicially considered.

A brief survey of the most familiar examples will enable such a judgment to be made.

On crossing the Channel a traveller finds himself at a foreign harbour station, which differs in many respects from the ordinary urban type. Such a terminus as Dieppe Maritime is barely worth consideration, although it serves its purpose, but at Calais, Flushing, and Ostend are more grandiose structures. The first is a chill and depressing introduction to the Continent, nor is it planned with the regard for space now so popular with railway engineers. At Flushing the traffic must be considerably less, but the buildings are roomy and comfortable, the large Customs hall communicating with suites of waiting-rooms and refreshment-rooms giving on to the platform. The style of architecture employed is not particularly attractive, but, viewed as a whole, this may be regarded as a good station design, dating from 1894. The huge new terminus at Ostend is barely completed, and includes a large and luxurious hotel. The structure externally is of stone, the train-shed of steel and glass. The hotel façade has a slated mansard roof of a pronounced French type, and produces a more dignified effect than the grandiose stations at Bruges and Antwerp on the same route. The Ostend hotel has been erected by the International Sleeping Car Company, whose policy has always been to improve the standard of travelling abroad, and whose *trains-de-luxe* for the Orient and for Russia start from this harbour.



DRESDEN STATION.

Antwerp station is another important example of a totally different type, with the rails raised many feet above the street-level. No English terminus corresponds to it in appearance, or even in proportion. The buildings form a solid block at the ends of the platform, and are not continued down either side of the circulating area in the usual way. They occupy a site about 200 feet by 250 feet, and are symmetrically planned, the central feature being an enormous hall roofed by a dome with glazed lunettes. This dome rises clear above the general level of the roof, which is four storeys above the pavement, and of mansard type. Perhaps the nearest parallel to this design among London buildings, as regards proportions, is the new Wesleyan Hall at Westminster, but that great pile far surpasses Antwerp Station in design and detail. The latter is the work of a noted Belgian architect, M. de la Censerie, and is said to have cost nearly £2,000,000. Its best feature is the great staircase rising from the central area (where are situated the booking-office, post and telegraph offices, &c.) to the train shed, a long structure of the ordinary sort, some 200 feet wide. Otherwise one feels that the vast outlay might have produced a far more monumental and probably far more practicable building.

Of all Continental cities there is no doubt that Paris is the most interesting to the student of railway stations. Here among a number of great termini are to be found the largest in the world—the Gare St. Lazare—and, in many critics'

opinion, the finest in Europe—the Gare d'Orléans. The other examples are of little interest, save in point of size, an exception being the Gare de Lyon, with its familiar clock tower crowning an otherwise fine and essentially French stone façade. The interior appointments of this station are very sumptuous, and there are few finer booking-halls or dining-rooms in existence, while the notable charm of Mediterranean sunshine is made the excuse for an attractive profusion of delightful frescoes and posters advertising the famous P.L.M.

The Gare St. Lazare is on all counts the largest and busiest terminus in the world, and has many times been extended. In the writer's opinion its simple and lofty stone façade, crowned by the great mansard roof so popular among French architects, is the most suitable of all the many modern gateways to Paris—again with the exception already mentioned—and reminds one in many ways of the Ritz Hotel in Piccadilly, always suggestive of the great boulevards. The Gare d'Orléans, whence English tourists set forth for Biarritz and Spain, has all the advantages of a beautiful situation. It stands on the south side of the Seine, separated from that river by a wide embankment, and faces the wonderful group of buildings comprising the Louvre and the Tuileries. The site may be fairly compared with that for the London County Hall, but in the latter case industrial ugliness lines the greater part of the south bank of the Thames. It is possible that our great-grandsons may live to see a similar transformation, with a well-planted and well-lit promenade from Southwark to Westminster, and yet another Waterloo—this time, no doubt, electrified and

separated from him by a glazed screen or wall. To do this he may have to go through all the business of porters and cab to transport his belongings from the exit in one street to the remote entrance in another street.



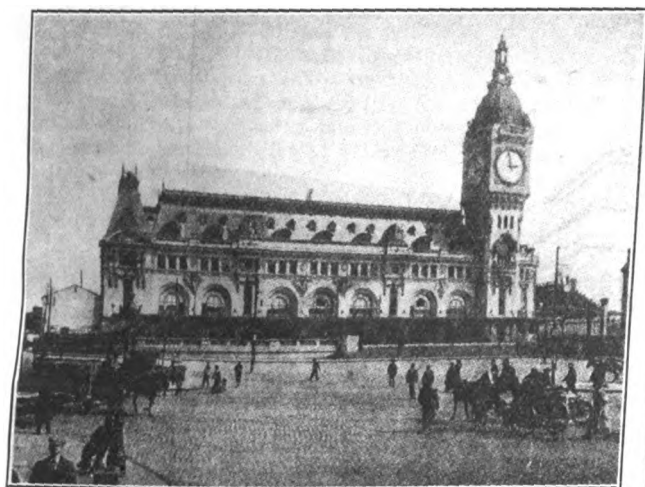
FRANKFORT STATION.

The Italian railway system lacks efficiency in most respects, and possesses only a very limited number of good stations. Of these Milan is notable for its importance rather than for its design. The central features—a large arched portico and the entrance hall within—are spacious and handsome, but for the rest the building has no features of interest, and is antiquated and dirty.

Turin is distinctly more advanced than Milan, but the approach to Venice by rail is marked by one of the most unsightly buildings imaginable. With an electrified line as far as Mestre—surely no difficulty to so scientific a nation—and with an architect who has studied Venetian architecture, a magnificent portal might be provided. The wide flights of steps down to the Grand Canal would surely help to inspire something better than the present ignoble barn.

The large terminus at Rome is, in a way, satisfactory, but is perhaps the weakest element in the fine scheme of the Piazza delle Terme. It is seldom that Italian architects of to-day design attractive detail, the Law Courts at Rome being an example of a monumental building ruined by execution. One feels that the unfortunate Sacconi—who never lived to see his wonderful monument to Vittorio Emanuele finished—might have improved many things in Italy had he survived, and not least her railway stations.

One must not forget, however, that at Genoa is a small though admirable terminal which seems to carry out the best traditions of that great art city, and the portico

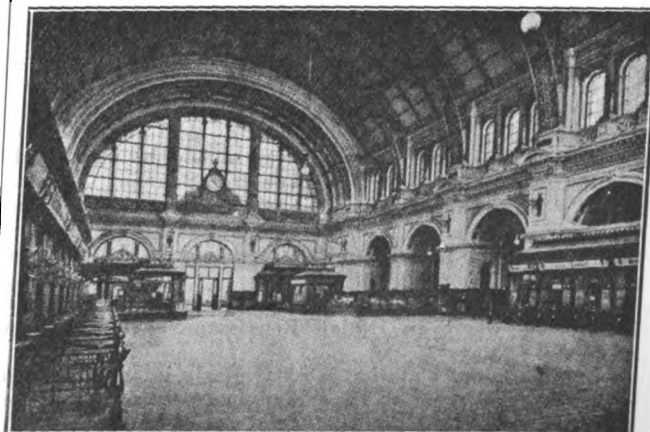


LYONS STATION, PARIS.

smokeless—occupying a place of honour in a fine scheme of architecture.

Electrification has had much to do with the success of this new station on the Quai d'Orsay, for the prospect of freedom from smoke has enabled the architect to adopt a rich and graceful style well in keeping with the fine position. The Gare d'Orléans externally is apt to appear smaller than its actual size till one compares its height with that of the adjoining seven-storey hotel. The general lines of the design are simpler than in any other great terminus in Europe, the long roof of the train-shed being visible between two pavilion blocks, and the walls being treated as an arcade of seven great arches. But decoration is employed with the greatest freedom, and only the situation prevents this lavish ornament from seeming exaggerated. As it is, there is a charm about the Gare d'Orléans just as appreciable in its own very different way as that exercised by the Gare St. Lazare. The interior presents many features of interest, for this is an underground station like Baker Street in London, with lines running through. All the offices are on the street level, with staircases to the platforms from a connecting bridge. The platforms are not six inches above the ground, as was usual throughout America and the Continent up to a short time ago, but three feet or so, after the English fashion.

One of the chief points in favour of the French terminus system is the division of the station into "Arrival" and "Departure" sections, thereby diverting vehicular and pedestrian traffic into two logical streams, but occasionally this is carried to excess. A passenger may, for instance, arrive by a main-line express and wish to continue his journey by a train standing in the next platform but



FRANKFORT STATION.—THE WAITING-ROOM.

towards the beautiful Piazza Acquaverde is worthy of the genius of Bianco or of Alessi. This is another case of an underground through station with only the offices at street-level.

In Switzerland are many large and well-known railway centres of international interest, but none of them need concern us seriously here.

Austria has opened several new lines in recent years, and some of them exhibit the very latest trend in station-

design. At Salzburg, for instance, on the Tauernbahn, is one of the most attractive examples in Europe, clean and bright beyond belief. Although not a populous centre, there are here baths and a charming open-air café on the platform; while the waiting-rooms are decorated with all the comforts of a London club and yet with an Austrian tastefulness and modernity that puts much of our vulgar upholstery to shame. The simple designs emanating from the best Viennese studios are, in the writer's mind, admirably suited for use in an atmosphere of severe steel and concrete—more so than the generous carving of Grinling Gibbons. Moreover, there is another respect in which these new Austrian stations appeal to English minds—that sanitation receives there the same scrupulous attention that is so characteristic of modern practice in this country. Among the great termini in Vienna should be mentioned the Südbahnhof, built in 1869-73 by the Railway Company's own staff at a cost of a million, and in the best vein of the scholarly Greek revival in Germany. For so old an example this is a remarkable station—as is St. Pancras in London—and it surpasses in refinement and dignity the more recent examples as the Westbahnhof.

In Germany the phenomenal increase in population and prosperity has necessitated the rebuilding of a great number of her stations, and although we cannot always see eye to eye with the Teuton architect in matters of taste, we must admit the extraordinary efficiency of the German mind in all practical directions.

design which the German architect has recently evolved and which is greatly to his credit. It is in the first place thoroughly applicable to its purpose, it is remarkably original, and yet it does not offend an artistic sense in any single particular. This station, in fact, signalises a new era in architecture. It is strange that the German designer, who until a late date usually perpetrated the most glaring aberrations of taste, has now suddenly reached a point of simplicity to which other nations are incapable of following. If the problem of rendering ferro-concrete artistic is ever to be solved, Germany will lead the way. The stupendous waiting-room of this building at Leipzig recalls the vast bare temples of the Nile. It is a far cry thence to the Gare d'Orléans in Paris, yet by such diverse channels is the problem of railway architecture being furthered in Continental Europe.

(To be continued.)

CAMBRIDGE SCHOOL OF FORESTRY. SECOND PROGRESS REPORT ON TIMBER RESEARCH WORK.*

INTRODUCTION.

RESEARCH work at the Forestry School has been somewhat interrupted during the past quarter, owing to the post of Reader in Forestry having been left vacant by the appointment of Mr. Henry to be Professor of Forestry at the Royal



LEIPZIG STATION.

Several of the most important terminals are of non-descript and very florid style, for the most part in stone, and erected at vast expense. Thus Frankfort Station (1883-8) cost £1,700,000, Cologne Central (1894) £1,300,000. Hanover (1876-80) £600,000, Mainz Central (1881-4) £700,000; and under the same head should be mentioned the Stettiner Bahnhof and the Anhalter Bahnhof, both in Berlin. Strassburg Station, on the contrary, is of an appalling dullness. The recent examples erected by the Berlin Overhead Railway certainly should be included in the former category.

A more academic design than these is to be found at Magdeburg, where an Italian Renaissance style has been adopted.

Dresden Central Station is particularly interesting from an engineering point of view, and has points of note for the architect. Built in 1892-8 at a cost of about £690,000, it has both through and terminal lines, the former being elevated on a substructure and the latter being at street-level. The main-station offices are placed between the through and terminal sections, and are at street-level. An appearance of symmetry is produced by roofing the train-sheds (of varying levels) on either side of the main buildings with roofs similar *externally*. The line of the office buildings is prolonged in a huge central train-shed containing more terminal lines. Engineer and architect have combined here to produce a very fine station.

At Leipzig is a leviathan among termini, the latest and best in the country. Here we have a style of modern

College of Science, Dublin. Mr. Henry left Cambridge at the end of March, and the school was consequently short-handed all last term. The pressure has now been relieved by the appointment of Mr. W. Dawson to the vacant Readership, and research work is again in full swing.

SCOTS PINE INQUIRY.

Since the date of our last report the time has been chiefly occupied in working out the results from the measurements and observations made last winter in the woods at Woburn and King's Lynn. The publication of these results has been delayed longer than was anticipated, which is due to difficulties experienced in analysing the samples of soil, in consequence of the presence of iron. The analyses have now been completed, and a bulletin describing the Woburn sample plots is in the press, and will be published, we hope, some time in August.

Conversion.—In the last report the percentage of waste in conversion of the sample tree was given as 24 per cent. We find this to be an error, due to a miscalculation of the volume of the tops which were not converted.

Taking the volumes of the three trees as obtained by the square of quarter girth method of measurement, the average percentage of waste works out to 17½ per cent., while on the volumes as obtained by true measure the average percentage of waste is 32½ per cent.

* By E. Russell Burdon, M.A. (Investigator in Timber), and A. P. Long, B.A., Univ. Diplomas of Forestry and Agriculture (Assistant Investigator).

PLANS FOR EXPERIMENTAL WORK.

1. *Railway Sleepers.*—In April last a letter was received from the Great Northern Railway Company asking the Forestry School to make certain investigations relating to the preservation of sleepers, and their subsequent immunity from fungal attack, and an experiment on a small scale with some thirty sleepers has been devised, and is now in progress. Mr. F. T. Brooks, Lecturer on Diseases of Trees at the Forestry School, is co-operating with us in this work.

In the same letter the Great Northern Railway Company volunteered to let the school test the comparative value of different woods for sleepers, by laying any special woods in the road as an experiment, which could be supervised by the investigator in timber.

2. *Paving Blocks.*—A similar offer to test the value of different woods and preservative processes in street paving was volunteered by Mr. Arthur Collins, city engineer for Norwich, with the consent and approval of the City Council.

3. *Building Timbers.*—A further letter was received from the Royal Institute of British Architects indicating various points connected with timbers used both for carpentry and joinery in buildings, concerning which architects and builders feel the need for reliable information, and desire to see research work instituted. The most important of these points relate to the possibility of treating the timbers to preserve them from fungal and insect attacks, and yet without injuring their working qualities, or rendering them less amenable to tools.

These suggestions have been carefully considered, and efforts are being made to organise an experiment on a semi-commercial scale, which will, it is believed, not only yield information on the above points, but be of benefit to many other wood-using industries at the same time. The offers made by the Great Northern Railway and the City Engineer of Norwich furnish an opportunity for acquiring valuable information on a number of points connected with the utilisation of timber generally, of which the following are some of the most important:—

1. The relative mechanical and physical durability of British timbers suitable for outside work.

2. The comparative value of different timbers suitable for building work, (a) for carpentry (b) for joinery and decoration.

(3) The comparative value of different methods of preservation—(a) in preventing shakes during seasoning; (b) in rendering the wood immune to fungal and insect attack; (c) the merits of the different processes according to the subsequent use to which the timber is applied (e.g. for outside or inside work, furniture and cabinet making, &c.); (d) the effect of the different processes on the working quality of the wood, on the tools employed, on paint, varnish, polish, glue, &c.; (e) the comparative merits of heartwood and sapwood especially after treatment.

The general plan of the experiment we propose to launch, provided we can obtain the co-operation of the various interests concerned, is as follows:—

1. *Supplies.*—We are endeavouring to obtain promises from estate owners, agents or foresters to furnish supplies of all the most important species of timber which are or can be grown in this country. The following is a list of those we wish to include:—

Coniferous Trees.

Pinus silvestris (Scots), *laricio* (Corsican), *pinaster* (Maritime), *strobus* (Weymouth), and *radiata* (Monterey).
Larix europaea (European Larch) and *leptolepis* (Japanese).

Pseudotsuga Douglasii (Douglas Fir).

Picea excelsa (Common Spruce) and *sitchensis* (Sitka Spruce).

Abies pectinata (Silver Fir).

Cedrus Libani (Cedar of Lebanon) and *atlantica* (Mt Atlas Cedar).

Thuya plicata (Giant Thuya).

Cupressus macrocarpa (Monterey Cypress) and *nootka-tensis*.

Broad Leaved Trees.

Quercus pedunculata and *sessiliflora*.

Fagus silvatica (Beech).

Castanea sativa (Sweet Chestnut).

Ulmus glabra and *montana* (Elm).

Robinia pseudacacia (Acacia).

Betula pubescens and *verrucosa* (Birch).

Juglans regia (Walnut) and *nigra* (Black Walnut).

Acer pseudoplatanus and *platanoides* (Norway Maple).

Platanus orientalis (Oriental Plane).

Fraxinus excelsior (Ash).

Aesculus hippocastanum (Horse Chestnut).

Crataegus oxyacantha (Hawthorn).

Populus serotina (Black Italian Poplar).

As regards the quantity of each species required, this will depend partly on the uses to which the timber is to be put, as only some of those mentioned in the above list are suitable for sleepers or paving, and partly on the number of different preservative processes we are able to include in the experiment. For testing the comparative value of the species suitable for sleepers and paving, we have decided, after consulting with the chief engineer of the Great Northern Railway and with the city engineer for Norwich, that the following quantities are the smallest that should be laid down, if the test is to be of any real value to railway companies and municipal councils: Fifty sleepers of each species, equivalent to, say, 150 cubic feet of timber; 3,000 paving blocks (3 inches by 9 inches by 4 inches) of each species, equivalent to, say, 200 cubic feet.

These quantities would have to be increased in proportion to the number of preservative processes which each species is to undergo.

Of the woods suitable for building or cabinet making smaller quantities would suffice.

In order to eliminate all possible sources of error the trees allotted by owners for the experiment would have to be examined before felling, the species determined, and records made of the conditions under which they were grown. Numbers would be affixed to each tree, and reference specimens would be taken after conversion of the timber for comparison with the specimens used in the experiment.

We should hope to have all the required trees selected and felled before the winter of 1914-15 is ended, and the experiment would then be started as soon as the timber was properly seasoned.

2. *Preservative Treatment.*—We are approaching firms interested in different processes of preservation, with a view to co-operation in the experiment, and in the event of arrangements being made equal proportions of the timber of each species will be treated by each different process. It will probably prove possible to apply some of the treatments at the Forestry School, or before despatch of the timber from the estate where it was felled. Where a special plant is necessary, the timber will, of course, have to be sent to the works of the preservative company in question. After treatment further reference specimens for comparison with those in use would have to be taken.

3. *Disposal of the Specimens.*—The sleepers and paving blocks would then be laid in the railroad or street, their arrangement in the beds being supervised by the Forestry School. As far as possible all specimens would be laid at the same time and in the same stretch of road, so that each would be subjected to the same conditions of climate and wear and tear. Each lot representing a species, and each process of preservation to which it has been subjected, would be so arranged in the railroad or street as to form a sequence.

The building timber specimens would be treated in various ways, some by being placed in a rotting pit, others under conditions approximating to those found in ordinary buildings. The resistance to boring insects would also be tested, and other points to be investigated would relate to the effect of the treatment upon the working qualities and appearance of the wood and upon tools, the readiness of the wood to take paint, varnish, polish, and so forth.

These are the main lines of the experiment we are endeavouring to organise. Its execution on such an extended scale depends, of course, upon the possibility of securing the co-operation of the various interests directly or indirectly concerned and the necessary support. But the offers of the Great Northern Railway Company and the Norwich Municipal Council afford such an exceptional opportunity for acquiring knowledge of service to users of timber generally that we are hopeful of being able to gain this support. Promises have already been received in respect of the supplies of one or two species, and their treatment by one or two methods, and we shall be glad to hear from any owners, agents, foresters, or business firms who are interested and willing to take part in the experiment.

Hand Specimens of Timbers for Technical Schools.—Suggestions have been received from the principals of certain technical schools, as well as from some of the teachers, to the effect that the Forestry School would assist students of woodwork at these schools if it could supply small specimens of different woods, accurately named, which would enable

the students to study the structure and learn to identify various species. It was also suggested that leaflets, giving elementary information about the structure of the wood and the habits and distribution of the tree, might accompany each specimen. A desire for knowledge of this description has frequently been expressed by carpenters, cabinet-makers, and others, as the possession of it enables the wood-worker to correlate the structure of a wood with its working qualities and to apply the raw material to better advantage to the purpose in hand. Such knowledge greatly increases his interest in the work, and it is further useful in enabling him to detect the accidental or fraudulent substitution of one wood for another.

In consequence of this suggestion a circular letter was sent to the Secretary of every County Education Committee in twelve adjacent counties to ascertain whether, in the opinion of education authorities, the organisation of work on some such lines would benefit the cause of technical education. If it was thought likely to be of real value, the Forestry School would be prepared to organise a scheme, provided that the necessary funds for the purpose could be raised.

From the replies received it is evident that such work would be appreciated in several quarters, and efforts will accordingly be made to distribute specimens whenever the school is in a position to carry on such work.

In the event of the experiment described above being successfully launched, the school will have a large number of different timbers passing through its hands, and it may prove possible to include a scheme for supplying a certain number of technical schools with specimens in the general plan for the experiment.

ESTATES VISITED.

The following estates have been visited during the past quarter:—

Highclere, Newbury.—The object in this case was to examine the timber of one of the fine Corsican pines growing on this estate, which was felled in March, and measure the proportions of heart and sap. By the kindness of the agent, Mr. J. A. Rutherford, the whole tree has been presented to the Forestry School, and a stem analysis of it is being made. The work has not yet been completed, but the results will be published as soon as possible. We hope to employ some of the timber for sleepers in the experiment described above.

Westwick, Norfolk.—This estate was visited in connection with the demonstration in forestry given by the Adviser in Forestry to the Eastern Counties, Mr. C. Hankins, an account of which was given in the *Gardener's Chronicle* of May 24. The possible utilisation of the timber of the Maritime pine (*Pinus pinaster*) was one of the points to which the writers paid special attention. It is generally regarded as useless except for the cheapest class of work, and its durability, even when placed in a dry and well-ventilated position, is said to be low. This has not, however, proved the case at Westwick, for an apple shed which, Colonel Petre informed us, was built of the timber of this pine some thirty years ago, is still practically sound, except just at ground level, where some of the boards show signs of incipient decay. Colonel Petre has kindly promised to let us have supplies of this wood to test in the experiment for sleepers and paving blocks.

Holkham.—A visit was paid to this estate with the object of studying the Corsican pines, which are several years younger than those at Highclere, and are only just beginning to develop heart-wood. We are indebted to Lord Leicester, who has expressed great interest in the work, for promising supplies of this tree for the same experiment. In the small experiment with sleepers referred to, six of the thirty sleepers used were obtained from a Corsican pine felled at Holkham, and our thanks are also due to the Forester, Mr. D. Munro, for his assistance in this matter.

ARCHITECTS' GRIEVANCES AGAINST THE MODEL BY-LAWS.

IN the section of the Royal Sanitary Institute Congress at Exeter devoted to architecture and engineering, under the presidency of Mr. H. P. Boulnois, Mr. H. D. Searles-Wood, F.R.I.B.A., read the following paper on the above subject:—

Since Mr. Halsley Ricardo's paper, which was read at the York Congress and, I think, sufficiently answered, there have been the following papers read on the subject of the by-laws, viz. Mr. William Woodward read at the Surveyors' Institution and Mr. Voysey at the British Constitutional Association. I thought it would be a useful subject to discuss the

grievance referred to by these gentlemen, and the best remedy. Mr. Woodward opens with an extract from "Little Dorrit," describing the Circumlocution Office, and he proposes to abolish the Local Government Board as far as it concerns itself about buildings. He says: "A man who has been specially trained for the work must take the place of those who have had no practical experience whatever in bricks and mortar, and who only rely on theoretical text-books and dozens of ill-drawn by-laws and regulations. But the mischief does not end here: an apparently oppressive Act of Parliament can be made reasonably workable by common sense administration, and an inoffensive measure may be rendered obstructive and vexatious by a faddy, ill-informed, and naturally aggressive official."

Mr. Woodward quotes from a paper by Mr. Lacey W. Ridge read at the Royal Institute of British Architects in 1904: "Building by-laws, specially in rural districts, are oppressive and inconvenient to landowners and county gentlemen, without any corresponding advantage to themselves, their workmen, or their tenants. The deposit of drawings and the intimation that no building could be begun without the approval of the local authority were distinct causes of irritation. By-laws are enforced by officials unfit or unwilling to put any but the narrowest interpretation upon them; and this conduct results in stopping building in the country, and, above all, is cutting off the supply of labourers' cottages."

On the same evening Mr. J. S. Gibson read a paper on "Architectural Design and the London Building Act," in which he mentions the great desirability of all district surveyors being practising architects, observing that in the interpretation of the various regulations dealing with complex modern buildings it is essential to have men who are experienced in modern architectural practice, men who know the difficulties that are constantly arising, and who are intimately conversant with the schemes of architects as judged by their designs. If architecture is to have any vitality in this country it can only be by sympathetic treatment at the hands of those carrying out the laws. Constant repression will discourage and enfeeble it, and, above all, red tape will strangle it. Nothing can be more inimical to the interests of the public, to the growth of architecture, to the beautifying of our streets, than to have as interpreters and administrators of a complex Building Act persons who, although highly skilled in technical knowledge and masters of routine, are inexperienced in the erection of buildings.

Sir Alexander Stenning read a paper at the Surveyors' Institution in 1905, dealing with urban and rural by-laws. Referring to the deposit of plans, he says: "A district surveyor in London acting under the Building Act is satisfied with inspecting the drawings and pointing out to the builder any matter which he (the district surveyor) considers will contravene the provisions of the Act; but as 'district councils' have the power to demand the deposit of drawings it gives them an opportunity of raising frivolous objections, as in the case of the Chorley Rural District Council (this is the case of the late Sir William Grantham)." The remedy for this Sir Alexander Stenning sets forth in the following paragraph:—

"It would be enough if notices were given to the authority by anyone intending to build, and a simple form for the purpose should be obtainable from the authorities, on which should be stated the class and exact position of the building intended to be erected, so that their inspector should have the opportunity of assuring himself that the by-laws as regards sanitation were not being infringed in any way, and whether or not it fell within the exemptions as regards construction and materials."

Mr. A. MacMorran, K.C., said the whole of the by-laws, from beginning to end, required revision, and, more than that, they require revision by professional experts, by men who know where the shoe pinched.

Mr. Woodward's remedy is to set up in each town an office (it may be the office of the architect or surveyor), which should be open every day at stated hours for the examination of drawings and specifications for new dwellings for the working classes; it would not take an architect long to see that these drawings and specifications represented dwellings which, for planning and specification, were suitable and proper, and would secure healthy dwellings.

To provide for the settlement of disputes a tribunal should be instituted in each town, before whom builders and architects should appear; the tribunal should consist of three men: one an architect, one a surveyor, and one a builder, each of good repute and of high standing, and the decision of this tribunal should be final and binding on all parties.

General rules and regulations must, of course, be made for the guidance of architects, builders, and tribunal of appeal. These would be compiled by professional men, would be about one-twentieth the length of the Local Government Board's by-laws, but all-sufficient to secure healthy and well-built dwellings for the working classes, having in view the particulars, needs, and requirements of each district both as regards materials and workmanship. For example, some districts are able to build economically in the particular materials at hand, whether wood, granite, stone, brick, &c. In addition the authorities would always have before them the future development of each district.

Mr. Woodward dreams that the moment may arrive some day when all the districts in England may be without any regulations whatever.

But whatever you call them, by-laws or regulations, it is impossible to go on without some guidance, and that leaves the two grievances of the administration of the laws and the deposit of plans.

Now I venture to suggest that the feeling that appears to exist between architects and officials is due largely to want of knowledge on both sides. Many officials do ask for absurd things to be done owing to the way in which they construe their by-laws, and many architects design their buildings without the slightest regard to the by-laws of the district, often not having taken the trouble to get a copy of them before designing the building. But I think that this friction is much less than it was.

Now, with regard to the deposit of plans, the real grievance is that architects think that their plans are used for other purposes than seeing that the particular building complies with the by-laws, and that their designs are used by the officials in preparing drawings for their Council buildings. I have heard of instances where copies of plans have been obtained from the deposited plans, and houses built from them by unscrupulous builders.

The tendency of by-laws was to discourage the introduction of any enlightened innovation by way of new methods of construction or the use of new materials.

The regulation affecting the height of rooms was by far the most harmful and far-reaching in its effect on building from both an artistic point and an economic aspect. Not only councillors but architects in their zeal to advocate foreign styles, such as the Renaissance, had ignored all consideration of the English climate. The constant climatic changes made it very important that their houses should preserve an equable temperature throughout the year.

The difficulty of securing this quality was greatly aggravated by high rooms, high in proportion to their size. The desire for high rooms was mainly due to the mistaken notion that they were necessarily more healthy; but Dr. Poore had laid it down that height alone did not make a room healthy, and if they were to have legislation to compel the construction of healthy rooms they needed provision for circulation of air, and not merely height. In England the windows should be kept as low as possible compatible with abundance of light, so as to minimise the temperature-changing power of the glass surface, and the lower the ceiling the smaller the window might be without loss of light. Most rooms, whatever the size might be, should have the light from the windows diffused and reflected by the ceiling, and for the purpose of air circulation should have an air flue distinct and separate from the smoke flue, but running up beside it as an exhaust. This additional flue added, of course, to the size of the chimney stack, which was an artistic advantage, producing an effect of stability and dignity. It was true that they added to the cost of the building, but the cost was far more than counterbalanced by the reduction in the height of the rooms this made possible. If rooms might be built 7 feet 6 inches, or 7 feet 9 inches, or 8 feet in height, the saving would be considerable on the thickness of the walls, the width of footings and foundations, the height of windows, the height of stairs, and the area occupied by the stairs and the walls.

The regulation which provided that the area of window should equal one-tenth of the floor area was, for small rooms, absurdly too great, and in no case ensured ventilation.

Mr. Voysey urged the abolition of the existing by-laws and the appointment in their stead of qualified officials, whose duty it should be to report to their Council when any building was proposed that, in their opinion, would be dangerous to life, or limit or infringe on the liberty of others. Then let it be made a criminal offence on the part of the owner of any building which could be shown to have caused injury. The owner, if made responsible, would be

elevated and not degraded by his increased sense of responsibility.

The Royal Institute of British Architects' report referred to by Mr. Woodward stated:—

"It appears to the committee that no model by-laws can be considered complete which do not include those to be enforced by local authorities with respect to the staircase and exits of public buildings and factories, even though authorised otherwise than under the Public Health Acts. It is of great importance that the requirements of the local authorities as to the deposit of drawings should be reasonable, and that they should be stated. The committee suggest that in all cases a block-plan, with the lines and depth of drainage shown thereon, together with the nearest public roadway and adjoining premises within 100 feet of the proposed building, should be deposited, and that when required plans and sections (together with elevations, if needful, to explain methods of construction) should be submitted for inspection during a definite and limited time, which drawings should be then returned stamped if approved, or if not approved accompanied by a precise statement of the particulars in which the by-laws have not been complied with. It would be of great advantage if an appeal could be provided to a technical authority as to the meaning and applicability of the by-law."

This report was presented in 1904, and the outcome of it was the modified model by-laws for rural districts that closely followed the lines of the report; but nothing has been done in respect to the tribunal of appeal, and I venture to suggest, in spite of Mr. Woodward and Mr. Voysey, that the best tribunal would be the Local Government Board.

In the event of a difference of opinion arising between the authority and the building owner as to the suitability of his design and the construction of the by-laws, the building owner should forward his drawings to the Local Government Board, with a statement of the argument he put forward why the local authority should pass them, and the local authority should state their reasons for objecting; the decision of the Local Board should be binding on all parties, and, so far as I can see, there should be no reason why the matter should not be dealt with promptly and with little trouble. I am aware that the Local Government Board always decline to give a legal interpretation, as that is a matter that the courts must settle; but this reference that I suggest would, in most cases, be as to the reasonableness of the objection, and would not necessarily involve the legal construction of the by-law, but simply the usual reading of it, with which the Local Government Board would be quite familiar.

It appears to me that such a tribunal would be more impartial than any tribunal formed in the way suggested by Mr. Woodward, and the decision of the Local Government Board would, in course of time, form a series of precedents which would be of great assistance to both local authorities and building owners.

The following resolution was proposed by Mr. H. D. Searles-Wood:—

"That the Council of the Royal Sanitary Institute be requested to urge on the Local Government Board the desirability of the establishment by the Board of a tribunal of appeal from the decision of local authorities on points relating to practice in the working of the building by-laws, and should they consider that Parliamentary sanction is necessary for the formation of such a tribunal to take steps to obtain such sanction."

Mr. Lacey (Oswestry) said it might be an appropriate thing for a public official on whom the strictures in the paper had been levelled to take the opportunity of making a reply to Mr. Searles-Wood, but he would go so far as to second the resolution, because there was a good deal to be said in favour of it. It seemed to him that the paper dealt more with the grievances of architects than with the by-laws. With regard to Mr. Woodward's desire to abolish the Local Government Board's connection with by-laws, he would suggest that the head of the architectural department of the Board was by no means a fool. He did not see why there should be any feeling of irritation on the part of architects to submit plans. It was laid down by law that the local authority was to express its pleasure or displeasure with plans, and plans must be submitted to them. He saw no greater reason for irritation over that than for a man going to a cash store to buy something being called upon to pay cash. It seemed to him that the grievance was not so much against the by-laws as against the officials who had to administer them; but after the expressions of Mr. Searles-Wood he thought that might be passed over. At the meeting of the Institute in Belfast Mr. Wood said that the operation

of the by-laws had a restrictive effect on design. As a general principle he could not see how the by-laws as they existed at present had any effect on design. If it were so, there would not be the magnificent public buildings they saw, or the domestic architecture. Mr. MacMorran, who was a notable authority on law, said that the whole of the by-laws from beginning to end required revision, and, further, that they should be revised by professional experts who knew where the shoe pinched. He thought that statement went too far, and there ought to be some definite statement as to where the shoe really did pinch. One would imagine that there were corns on every toe of these gentlemen. But what were the fundamentals of the by-laws? Were 9-inch external and party walls as a minimum too thin? Were the laws governing the thicknesses of walls oppressive? Was not the necessity for a good foundation uncontrovertible? And were the regulations for air space and drainage too drastic? There was nothing there to which objection could be taken. In certain minor directions, no doubt, clauses did have an effect on design, as where it required woodwork in domestic buildings set back in a reveal 4½ inches, and no doubt a lot of those things could be revised. Local government had rightly been placed in the hands of the local authority, and the development of a district by building operations and the lay-out of new streets was essentially a thing for local government. The suggestion that eventually all regulations might be done away with was, to his mind, a debased form of Socialism. He was rather sorry to hear the suggestion of Mr. Wood with regard to the deposit of plans and as to such plans being utilised by public officials. He thought no man of honour would do a thing like that, and that on the whole local and public officials were as conscientious to their employers and their public office as the architect was to his clients. One point he could agree with was in regard to the windows of rooms, for one-tenth as a fixed basis was wrong in some places. It might be well reduced where there was a large open space in front and the light was obtainable at a very low angle. He seconded the resolution because there was something to be said for it in that questions of fact in the by-laws had to be submitted to a Bench of magistrates or a Court of Law for decision, and it would not be a bad thing to have a tribunal as suggested to settle differences of opinion.

Mr. E. T. Hall, F.R.I.B.A., said the subject raised was a very important one. It was not because there was any inherent sin in their officials, nor did he think Mr. Scarles-Wood suggested that for a moment, but it was that when laws laid down in black and white regulations in regard to buildings they were really setting a drag upon the evolution of design and construction. The last speaker had said that they should not object to a 9-inch wall. But why should they have it? Why not have a reinforced concrete wall 3 inches thick, which would not be anything like the cost, and was quite as good? The difficulty was the moment they said they must make a wall of this or that thickness all further inventions were stopped. Then, again, in many by-laws the size of joists was specified, and he had known some cases where the specified size was ridiculously excessive, and sometimes they had to put in the same size joist for rooms of 10 feet as for 15 or 16 feet. Then why should they insist on having wooden floors? They might have a reinforced concrete floor, which might be cheaper in districts where they had plenty of gravel, and where they could not get imported wood. The great aim nowadays was to get cheap houses for the people who were earning a small wage, and they could not possibly do that if they had to comply in certain districts with certain by-laws. Therefore, the great aim and object of by-laws ought to be that, while laying down general principles in respect of healthy conditions and with regard to proper drainage and so on, they ought not to go so much into detail. If they could have a revision of the by-laws so that they should deal with principles rather than with details, he believed it would be a great benefit. Of course, it was said there would always be some wicked jerry builder or some other person frightfully awkward and wrong, and that, therefore, they must set down the by-laws in detail. Admitting that that was so, then it seemed a reasonable way out of the difficulty to adopt a suggestion that there should be a tribunal of expert men. That was only following the common practice of Scotland. The Dean of Guild Court (Scotland) was a technical body, which dealt with all plans, and there was no reason why they should not have something of the sort in this country. They had such a body in London in the Tribunal of Appeal, and it was largely used; and he believed in practically every case the decisions were most satisfactory, because the Tribunal looked at the common sense of a

matter, and where a rule was inapplicable they waived it. He was building a large building in a big city in the North of England a little while ago, and in connection with the drainage he used pipes of ¾-inch diameter. The local by-laws required 4-inch pipes, and the result was that he was called upon to make alterations which would have cost £700. He went before the committee of the Corporation, and showed them that what he had done was infinitely more sanitary than what was provided by their own by-laws, and in the end they allowed what had been done to remain. He pointed out to them that what he had done was the practice in London and Leeds and Glasgow and other places. It only showed that by-laws were not necessarily right. They were often too rigid, and if in such a case as that there had been a tribunal, as suggested, the tribunal would have taken a common sense view of it.

Mr. Kaye-Parry (Dublin) said that Mr. Lacey had asked where the shoe pinched in this matter, and he would answer it by saying it pinched not only as regarded the actual by-laws themselves, but also in the spirit in which they were interpreted. As a rule, the plans for buildings came before the surveyor, who had had a purely engineering training and not an architectural training. The surveyor did not look at these plans with the eye of the architect, but with the eye of the civil engineer, and there were many things to which with his training he might take exception which the architect, from his point of view, with his training, would consider quite legitimate, and if permitted would be able successfully to defend. They were not a law-abiding people in Ireland, and the way they got over the difficulty was to appeal to the committee from the decision of the surveyor, and if they were able to make a good case they promptly waived the by-laws. But there was another solution of the difficulty, which was an eminently satisfactory one. In Dublin, in addition to the surveyor, they had a city architect, who was a Fellow of the Royal Institute of British Architects. The city architect examined all plans, and whilst he was determined to do his duty to the Corporation, still, he always approached the task with a sympathetic mind, and with the desire to meet the architect in every way possible consistently with doing his duty. Consequently, in that respect they were singularly well placed in Dublin. He knew there were practical difficulties in adopting a similar plan elsewhere, but if it could be done a great deal of the present friction would be overcome.

Mr. Redfern (surveyor, Honiton Rural District Council) said he took a view entirely opposite to the resolution. He considered it absolutely unnecessary, and that the whole terms of the paper were extremely disrespectful to the surveyors, and a challenge to them on the part of the architectural profession. In fact, the attitude of some architects was a distinct challenge to the surveyor, and when architects approached the surveyor in that manner it put him on his mettle. If Mr. Hall had first put his proposal for ¾-inch pipes before the surveyor he doubted if there would have been any trouble or friction.

Mr. Hall said he did so.

Mr. Redfern said he meant that Mr. Hall should have consulted the surveyor. If they approached the surveyor in that way they generally found that the matter could be satisfactorily arranged.

The Chairman pointed out that the by-laws were cast-iron, and they must abide by them. A surveyor had no more power to alter the by-law than he had.

Mr. Redfern said if they took the model rural by-laws of the Local Government Board they had some ground to go on, and it was his firm opinion that these by-laws were in no way burdensome to the architectural profession or to anyone who wanted to build. In large numbers of the rural districts of England, and certainly in the south-west, there were no building by-laws at all. In twenty-two out of the twenty-six villages in his district there were no by-laws, and what happened was that buildings were put up which were not safe or healthy, and which in a few years' time would cause considerable trouble. The difficulty was that they got the jerry builder coming into the place, who wanted to make the last halfpenny out of his work, and unless they had something down in black and white to stand on they would be all over the place. If only qualified architects sent in plans it would be all right, but so far as the housing of the working classes was concerned the majority of the plans were sent in by the builders themselves.

Mr. Munce (Belfast) expressed the opinion that there was no justification for the suggestion that surveyors made a wrong use of plans.

Mr. Brodie (Blackpool) said that the surveyors would be satisfied by going to their old friends Quarter Sessions.

The Chairman said he had been a surveyor himself for many years, and he found there was still confusion about this by-law question. Many members of Corporations and of other local authorities thought the by-laws were elastic, and that they might give way on them, but it was absolutely illegal to do anything of the kind. A by-law was a by-law which should be enforced. With regard to the by-laws themselves, they were thirty years old, and were practically founded on the Great Fire of London, and very nearly all the provisions were to prevent fire more than anything else, and were in the interests of the fire insurance companies. The sooner someone could get to work and remodel the model by-laws and have the whole Acts of Parliament altered with regard to them the better. A vast number of alterations in building had taken place since the by-laws were passed.

The resolution of Mr. Searles-Wood was carried.

ENGLAND'S ACRES: THE STORY OF LAND OWNERSHIP.*

By JOHN GEORGE HEAD (Fellow).

IN these days of rapid travelling there are probably few who, as they are whirled past cornfield and pasture, heath and woodland, have not felt arise in their minds the question, "To whom do all these lands belong?" followed by the thought that every tiny scrap was claimed by someone or other who would promptly disclose him or herself upon the attempt to take possession of the most insignificant portion of all the land passing so rapidly before their eyes. Nor would it be surprising if the further questions presented themselves: How did these various owners become possessed of it? What right have they to it? These are indeed burning questions of the day—questions which are forced upon us by the trend of present legislation, and to which, therefore, we may with advantage devote the most careful consideration, not only as members of a profession which deals with land, but also as members of the community at large.

There is a story of one of our English landowners who, finding a stranger on his land, reminded him that he was trespassing, when the following dialogue ensued:—

"Well, if I am trespassing, who are you, anyway?"

"I am the owner of the land."

"Where did you get it from?"

"I inherited it from my father."

"And how did he get it?"

"From his father, and so on for generations past."

"But where did your first ancestor get it from?"

"I suppose he fought for it."

"That's all right; I will fight for it now."

It is highly improbable that the proprietor adopted the suggested means of settling the ownership of his land, and yet the stranger was only proposing to put back the clock a few centuries, to the time when, even in England, the title to land might be summed up in the well-known lines:—

"The good old rule, the simple plan,

That they should take who have the power,

And they should keep who can."

Such, indeed, is the primordial title to land which has been set up by man, first against the wild animals, and then against his fellow-men. This method of acquisition is not altogether defunct; rather has its name been lengthened from "conquest" to "colonisation." The principle exists to-day, only the "taking" and "keeping" are done by the law instead of by the sword.

Looking far back into the dawn of history, when the world was large, when there was no overcrowding, we see even then the beginning of that desire for enjoyment which is the parent of the tenant right of to-day. "To have and to hold" is a desire of human nature, as old as, and springing out of, the instinct of self-preservation. The troglodyte held his cave, and the lake-dweller his pile dwelling, against all comers, until dispossessed by a stronger than he. The hunter viewed with jealousy the incursion of others into the regions which from long habit he looked upon as his own, the tiller of the soil strenuously excluded from his cultivated patch all but his own belongings, and the shepherd and the cattle-owner strained every nerve to keep inviolate the enclosures within which their stocks were housed. Side by side with civilisation and industrial prosperity grew the need for permanence of occupation, and as the scattered units

banded themselves together for protection against wild animals and against human enemies, as the groups grew larger and increased from the family to the tribe, their place of dwelling became characterised as their own, and the fact of ownership arose. The fruitful earth was recognised as the source from which they drew their sustenance, whether by the chase, by husbandry, or by the manufacture of the materials found within it. It became known as the provider of all things, and was looked upon as a belonging of great value, to be taken and held at the cost of labour and even of life. As numbers increased and personal interests became divergent, it became necessary to regulate ownership by rules, and these were accordingly laid down by the heads of the tribes according to custom and to the requirements of their several peoples. These rules were the first land laws. As soon as civilisation was sufficiently advanced, definite laws took the place of the tribal customs which had in their turn replaced the law of the strongest, and when nomad life became fatiguing or inadequate, the beginnings of agriculture led to settlements being formed. These laws were in vogue long before the invention of writing, and therefore we cannot hope to find any contemporary record of them, but their import may be gathered from surviving customs and from systems in force among rude nations which have come under the notice of competent observers.

From the Romans we learn that among the German nations conquered by them, although their chief wealth lay in their cattle, a portion of the land was cultivated, and was allotted annually to the heads of families for this purpose, being changed in rotation from one to another so as to secure equality under a system known to us as the "tribal community." Similar customs exist in Servia to this day, under which family property is held in common, every member having a right to a place in the family dwelling, and to a share of the produce of the family fields. In the Russian "mir," or village, there is still joint ownership of land and joint liability for taxes. Where the land is poor, redistribution occurs seldom, but for rich lands there is competition, with a corresponding change of ownership at intervals. In India the village system still exists as a permanent institution. But these rudimentary systems pass away as civilisation advances, and private ownership begins to emerge. Increasing population makes it necessary to produce more from a given quantity of land, and just in proportion as the husbandman expends labour on the soil and enriches it with manure, so does he desire to retain possession of it and to transmit it to his family at his death. In this manner occupation becomes permanent, first in the case of those powerful enough to hold their own, and afterwards, as a general rule, upon the principle that labour and expenditure applied to land by its occupier afford to the latter a claim to such a degree of ownership as will allow of his reaping the benefit of what he has put into the land. At this stage most nations have arrived by the time they are sufficiently advanced in civilisation to have written laws. So among the Israelites lands were allotted to separate tribes and families, and could only be alienated subject to a reversion to the original owners every fifty years, while among the Greeks and Romans private ownership was firmly established.

Coming to our own country, the earliest records of a definite nature are those in the reign of King Ina in the seventh century, when we find the manorial system in an advanced stage. The manor was a landowner's estate, including a village community in a state of serfdom or villeinage. Every villein held a yard land or virgate, consisting of a number of scattered strips of one acre in extent, which had been allotted to him in return for certain services. These services comprised military assistance, personal labour in tilling the demesne or land retained by the lord of the manor, and certain payments in kind. The villein was compelled to give so many days a week to the tillage of the demesne under the name of "week work," and further time upon special occasions, such as harvests, &c., as "boon work," while others who were not serfs but free men, tenants in free socage, were liable for "boon work," but not for "week work." There were also large areas of heath and woodland in common use upon which every villager had a right of pasturage.

In the seventh century, then, the manorial system was in full swing, but it is not clear for how long previously it had existed. Bearing as it does a strong resemblance to the Roman system of the "villa" with its *villicus* or overseer, its *colonni* or serfs, and *servi* or slaves, it is thought by some of our historians that during the Roman occupation it became grafted upon the system existing in pre-Roman times.

* A Paper read at the Oxford meeting of the Surveyors' Institution.

Cæsar found agriculture flourishing in Britain, and he remarked upon the difference between the pastoral habits of those living in the interior and the more settled agricultural pursuits of those inhabiting the south-eastern corner of the island. It is possible that the pastoral inhabitants of the hinterland represented the "tribal community" with its shifting of plots from one occupation to another in successive years, while the inhabitants of the seaboard counties may, even then, have reached the manorial stage. Be that as it may, the manorial system, with its village community of serfdom, was certainly in full swing directly after the arrival of the conquering Saxons, and, as compared with the tribal community, it marks a distinct advance towards proprietorship, for the plots are no longer shifted year by year from one occupier to another, but the virgate of some thirty-acre strips is found to be in the occupation of one individual, and to descend by single succession. When, therefore, the later feudalism of the Continent began to permeate England, it had only to adopt the manorial system, already some centuries old, imposing thereon its own special characteristic, the supremacy of the King, vesting all lands primarily in him as Sovereign Lord, from whom all lords of the manor held as vassals.

As soon as William the Conqueror was firmly seated, the whole of England was subjected to a most rigorous survey, not only of all the land, but also of all the live stock, and the results were incorporated in the

DOMESDAY BOOK.

This ancient and valuable record contains the result of a survey made by order of William the Conqueror in 1085-86. The way in which the survey was made will be best described in the words of the *Anglo-Saxon Chronicle*:—

"At midwinter in 1085, when the King was at Gloucester, he had a great consultation and spoke very deeply with his witan (council) concerning the land, how it was held, and what were its tenantry. He then sent his men all over England into every shire, and caused them to ascertain how many hundred hides of land it contained, and what lands the King had in it; what cattle there were in the several counties, and how much revenue he ought to get from each. He also caused them to write down how much land belonged to his archbishops, bishops, abbots, and earls—what property every inhabitant of England possessed in land and cattle, and how much money it was worth. So strictly did he cause the survey to be made that there was not a single hide, nor a yard land of ground, nor, it is shameful to say, what he thought it was no shame to do, was there an ox or a cow or a pig passed by that was not set down in the accounts. All these writings were brought to him. Particulars were collected as to the name of the place; who held it in the time of his predecessor, King Edward; who was its present possessor; how many hides were there in the manor; how many carucates in the lord's own hand; how many vassals; how many cottars; how many serfs; what freemen; how many husbandmen; how much wood; how much pasture; what mills and fishponds; how much had been added and taken away; and (here the inquiries seem strangely familiar):—

- "1. What was the gross value in Edward's time?
- "2. What the value at the time of the survey?
- "3. If its value could now be raised?"

This wonderful record served as the standard reference as to ownership in questions, legal and ecclesiastical, and as a basis of taxation until 1522, when the new Domesday Book was compiled.

It will be learned without surprise that many of the names registered in the Domesday Book are Norman, for, as was natural, many of the fairest lands were given by William to his nobles and to the warriors to whose valour he was indebted for his conquest of England. At that time doubtless the pugnacious stranger referred to in the opening lines of this Paper could have been accommodated in his desire to fight for his share of the land, and success would doubtless have given him as good a title to his estate as any deed of conveyance in these days would provide.

(To be continued.)

MR. A. E. RICHARDSON, F.R.I.B.A., has been appointed Carpenters' Company Lecturer in the School of Architecture of the University of London for the forthcoming session. The subject of his course will be "The work of the English Architects of the eighteenth century and of the Greek Revivalists of the first half of the nineteenth century." The lectures, which will be open to the public, will be delivered on Thursdays at 6 p.m., beginning October 16.

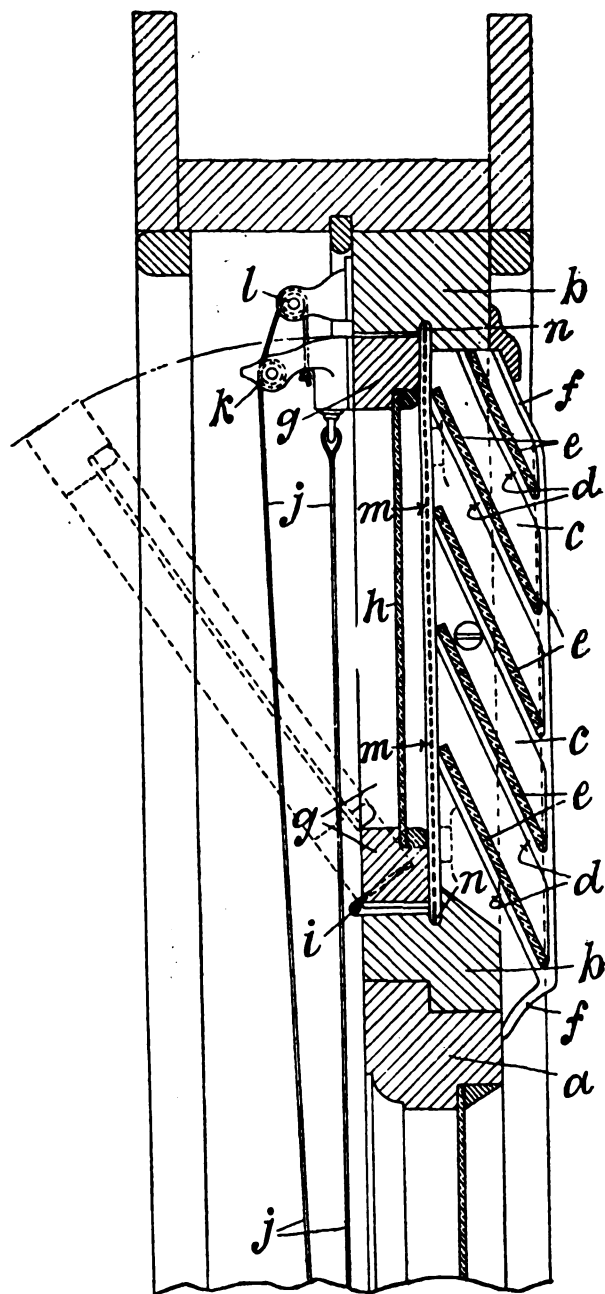
BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 23,999. Oct. 21, 1912.—Windows. Thomas & W. P. Hughes, of Rhydymwyn, near Mold, North Wales, builders. This invention relates to sliding and casement windows, and has for its object to provide means whereby a room may be conveniently ventilated without draught and without the necessity of opening or unfastening the sliding sashes or casements. A frame is fitted on the outside with upwardly inclined louvres of glass secured at the sides of same, and flanges whereby the louvres are prevented from displacement. At the front or inside of said frame there is arranged a glass-holding sash, the lower end of which is

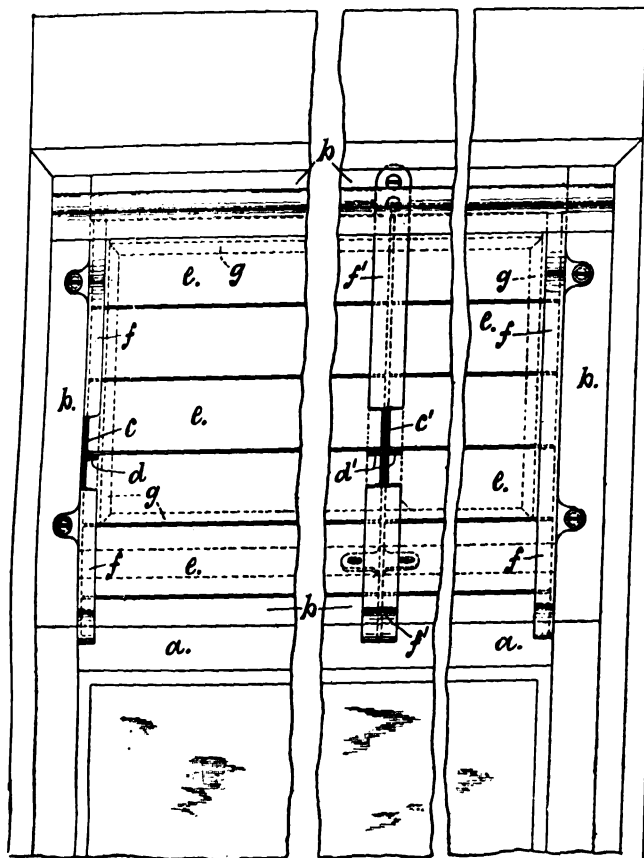
FIG. 1.



hinged. When it is desired to admit fresh air to a room for the purpose of ventilating same, the upper end of the sash is pulled downwardly about its hinges by cords, the current of incoming air entering the room in an upwardly direction, due to the upward inclination of the louvres. Fig. 1 is a vertical section, and fig. 2 an outside elevation; a indicates the top rail of the upper sash of the window, above which is disposed a frame, b, fitted with metal plates, c, on which are formed inclined ledges, d, adapted to support ends of

louvre plates, *e*, held by the flanges, *f*, on side plates, *c*. The other or meeting ends of the louvres fit in a middle support, *c'*, provided with ledges, *d'*, and flanges, *f'*; *g* indicates a sash arranged on the inner side of the frame, *b*, in which

FIG. 2.



is fitted a sheet of glass, *h*. The lower end of the sash, *g*, is connected to frame *b* by means of hinges, *i*. The sash, *g*, is raised and lowered about its hinges by means of a cord, *j*, passing over pulleys, *k*; *l m* indicates a sheet of gauze fitted within channels, *n*, of the frame *b*. July 16, 1913.

PATENT SPECIFICATIONS PUBLISHED AUGUST 14, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

- No. 9,534. April 22, 1912.—G. L. Gilberthorpe, Claude Street, and H. C. Marshall, Fullers Road, Chatswood, near Sydney, N.S.W. Adjustable fireproof blinds and louvres.
- 12,002. Nov. 21, 1912.—Sidney Barwise, M.D., B.Sc., High Croft, Duffield, Derby. System of heating buildings.
- 16,826. July 19, 1912.—G. H. Denison, Hunslet Foundry, Leeds, and Christian Korte, 10 Avenue Crescent, Harehills Avenue, Leeds. Hydraulic briquetting machinery.
- 17,156. July 23, 1912.—R. R. Gubbins, Eyre Cottage, The Grove, Blackheath, Kent. Machine for dovetailing, glueing, and connecting planks of wood together.
- 17,307. July 25, 1912.—Dated under International Convention Oct. 17, 1911. Achille Knapen, 75 rue de Walhem, Schaerbeek, Brussels. System of ventilation.
- 17,460. July 27, 1912.—A. S. Mizen, 136 Whitehall Road, Whitehall, Bristol. Door-closing device.
- 19,359. Aug. 23, 1912.—A. Herrmann, 107 Liechtensteinstr, Vienna. Process of and apparatus for moulding or forming plastic materials.
- 20,952. Sept. 13, 1912.—Dated under International Convention Sept. 15, 1911. Firm Gewerkschaft Pionier, Walsum-on-Rhine, Germany. Manufacture of briquettes from ore or blast furnace dust and organic binding substances in solution in water.
- 23,161. Oct. 10, 1912.—P. A. Smithurst, 226 Seeley Road, Mitcham Lane, Tooting. Door closing and check mechanism.
- 23,559. Oct. 15, 1912.—Gustav Oberleithner, Mahr, Schonberg, Germany. Cement plates.

25,014. Nov. 1, 1912.—Thos. Thornton, 34A Margaret Street, Bury, Lancs. Draught excluders.

25,772. Nov. 9, 1912.—Wm. Houliker, junr, Trafalgar Street North, Nelson, New Zealand. Operating and securing casement windows, fanlights, and the like.

25,929. Nov. 12, 1912.—John Sharp, 88 Poole Road, Bournemouth. Shelf supporter and connector.

30,080. Dec. 31, 1912.—Dated under International Convention Jan. 4, 1912. Emil Zuckerman, 24 Ridgewood Avenue, Yonkers, Westchester, N.Y. Invisible hinges.

249. Jan. 3, 1913.—Ludwig Pizinger, 1 Kolozovariutoza, Budapest. Sash windows.

1,063. Jan. 14, 1913.—Dated under International Convention Jan. 27, 1912. Louis Doyen, 2 rue Chambiges, Paris. Treating wood.

4,256. Feb. 19, 1913.—G. A. London, 13 Austin Friars, E.C. Electrical signalling apparatus for lifts and the like.

7,602. March 31, 1913.—Herman Cronwel, Weteringschans 71, Amsterdam. Floor, wall coverings and the like.

8,799. April 14, 1913.—Giulio Serrazanetti, 4 Via Foro Boario, Bologna. Retaining walls for preventing landslips.

10,639. May 6, 1912.—Henry Sidebottom, 75 Hawthorne Road, Chorlton-cum-Hardy. Cooking ranges.

10,781. May 7, 1913.—F. A. Bullivant, 72 Mark Lane, and G. M. Selby, West Ferry Road, Millwall. Means for effecting the closure of holes or sockets adapted to receive poles, screws, posts, stanchions, or the like.

11,963. May 22, 1913.—Joseph Graef, No. 3,500 Twenty-Second Street, San Francisco, California, U.S.A. Plasterers' trowels.

Any of the above specifications may be obtained from J. D. Roots & Co.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Amersham.—Houses, Cokes Lane, for Messrs. Wells & Kanla.

Aylesbury.—Building for Bifurcated Rivet Co. Four cottages, Highbridge Road, for Mr. W. G. Ellis.

Ten cottages, Southern Road, for Mr. W. Mayne.

House, Wendover Road, for Mr. C. E. A. Redhead.

Slough.—Secondary School: extension (£4,300).

CHESHIRE.

Altrincham.—Picture Theatre, Stamford New Road. Mr. T. A. Fitton, architect, 29 Corporation Street, Manchester.

Connah's Quay.—U.D.C. Offices. Mr. R. C. Davies, architect, Chester.

Ellesmere Port.—Sixty-one houses. Mr. A. Rowe, architect. Messrs. Merritt (of Birkenhead), contractors.

CORNWALL.

Falmouth.—Workmen's dwellings, for the Town Council.

DERBYSHIRE.

Chesterfield.—Market Hall: alterations (£1,000), for the Town Council.

DEVON.

Torquay.—Ilsham Schools: additions. Messrs. Waymouth & Webber, architects, 7 Strand, Torquay.

DURHAM.

Corshoe.—Workmen's Club: addition.

Durham.—House, White House Farm, for the University.

Hartlepool.—Working-class houses (£40,000), for the Corporation.

Houghton-le-Spring.—Fifty-two workmen's houses, near the New Town, for the U.D.C.

ESSEX.

Grays.—Picture Theatre. Messrs. Shiner (A.R.I.B.A.) & Porter, architects, The Gate House.

Hornchurch.—Council School (for 300 places), Malvern Road.

Leyton.—Fire Station (£2,000). Mr. E. H. Essex, Council surveyor.

Tilbury.—Cinema Theatre, Calcutta Road. Mr. P. Cornish, architect, 715 High Street, Leytonstone.

GLOUCESTERSHIRE.

St. George.—Picture Palace. Mr. H. M. Bennett, architect, 36 Corn Street.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.

THE NEW TOWN HALL AT COLOGNE.—Herr BOLTE, Architect.

[From *Deutsche Bauzeitung*]

ENGLAND—continued.

HAMPSHIRE.

- Bournemouth*.—House, plot 63, corner of Charminster Avenue and Gresham Road, for Mr. S. Gidlow.
 House, plot 93, Queen Mary Avenue, for Mr. F. C. Light.
 Two houses, Southwood Avenue, for Mr. C. W. L. Jenson; also
 Houses, plots 116 and 117: additions; also
 House, Montagu Road.
 Two houses, plots 13 and 14, Wentworth Avenue, for Messrs. Burridge & Bovill.
 Four houses, Heatherlea Road, for Mr. J. Elcock.
 House, Leamington Road, for Messrs. J. & A. Steane.
 House, plot 43, Montagu Road. Mr. H. B. Mudge, builder, 119 Haveland Road, Boscombe.
 House, plot 35, St. Luke's Road, for Mr. F. Holly.
 House, plot 24, Talbot Hill Road, for Mr. S. Carpenter.
 "Westover House," Westover Road: additions for Mme. Campbell.
 Mission Hall, Malvern and Eastern Roads, for Rev. H. Bloonfield.
 Police Station: barrack for thirty constables, cells and alterations. Borough architect.
 St. Mary's Vicarage, Windham Road: additions for Rev. Mr. Malpas.
Gosport.—Council School, Bedenham.
Portsmouth.—Church and Vicarage, Hilsea.
 Two churches, St. Mark's parish.

KENT.

- Sheerness*.—Council Schools, Rose Street. Mr. W. H. Robinson, architect, Caxton House, Westminster, London.

Wingham.—Premises for the Capital and Counties Bank, Ltd. Messrs. Worsfold & Hayward, architects, 80 Cannon Street, London. (Also Market Square, Dover.)

LANCASHIRE.

- Bolton*.—Public Baths. Mr. E. L. Morgan, Borough engineer.
 Works, Grant Street: extension for Messrs. Wigglesworth & Co.
Burn Naze.—Council School (£3,000). Messrs. D. Walton & Co. (of Cleveleys and Pendleton), contractors.
Newton Heath.—Picture Theatre (for 2,000 seats) and Billiards hall, for the Star Picture Theatre Co., Ltd.
Reddish.—Catholic Day Schools (£4,000). Messrs. Mangnall & Littlewood, F.R.I.B.A., architects, 42 Spring Gardens, Manchester. Messrs. Burgess & Galt, contractors, Upton Street, Ardwick, Manchester.
Warrington.—The "Crown and Sceptre" Hotel, Buttermarket Street: rebuilding.

LEICESTERSHIRE.

Desford.—Twenty workmen's houses.

LINCOLNSHIRE.

- Bourne*.—Workmen's dwellings. Mr. T. H. Hinson, contractor.
Burgh.—House for Baptist Chapel Trustees.
Grimby.—Premises for Nat. Prov. Bank of England (on site of King's Hall).

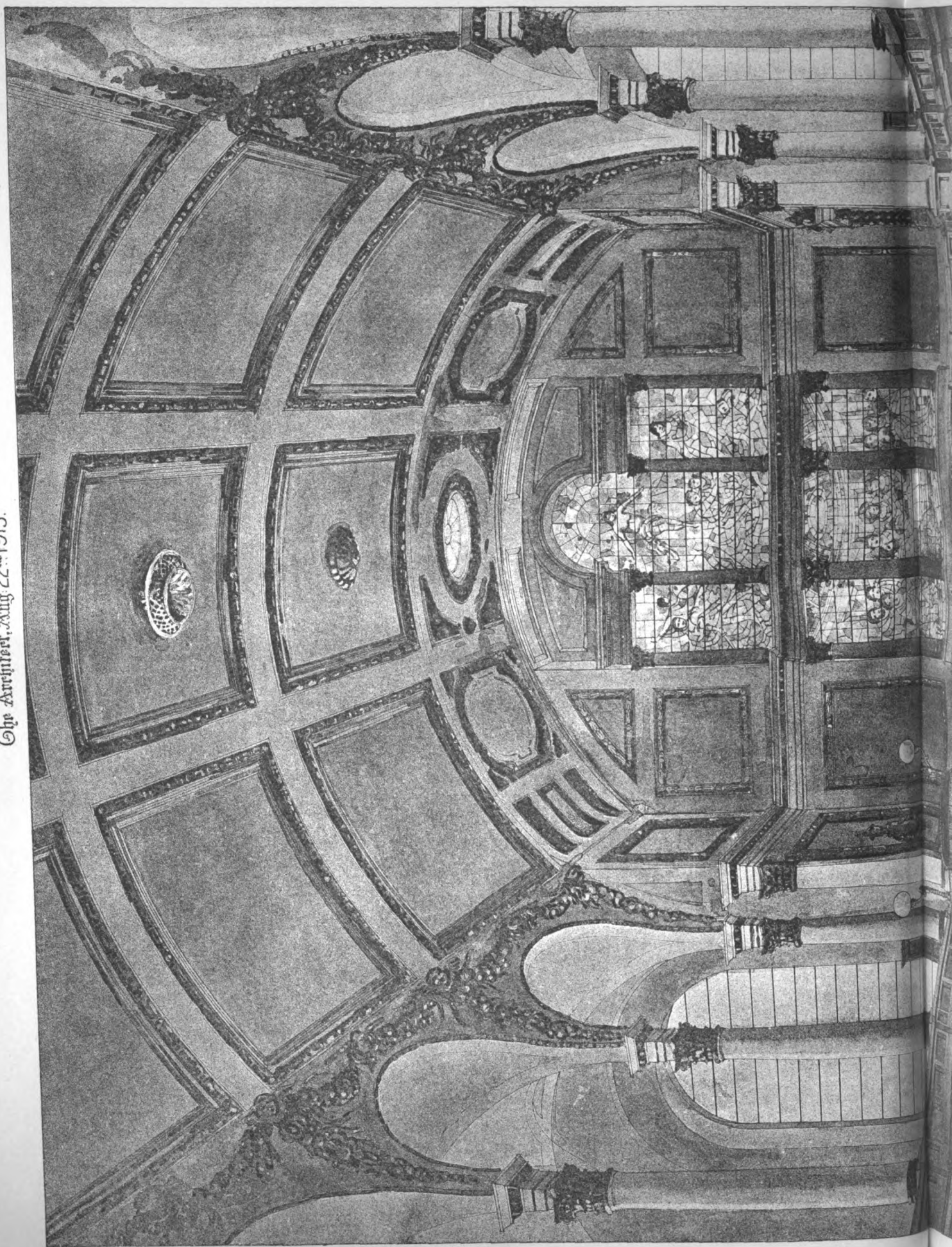
MIDDLESEX.

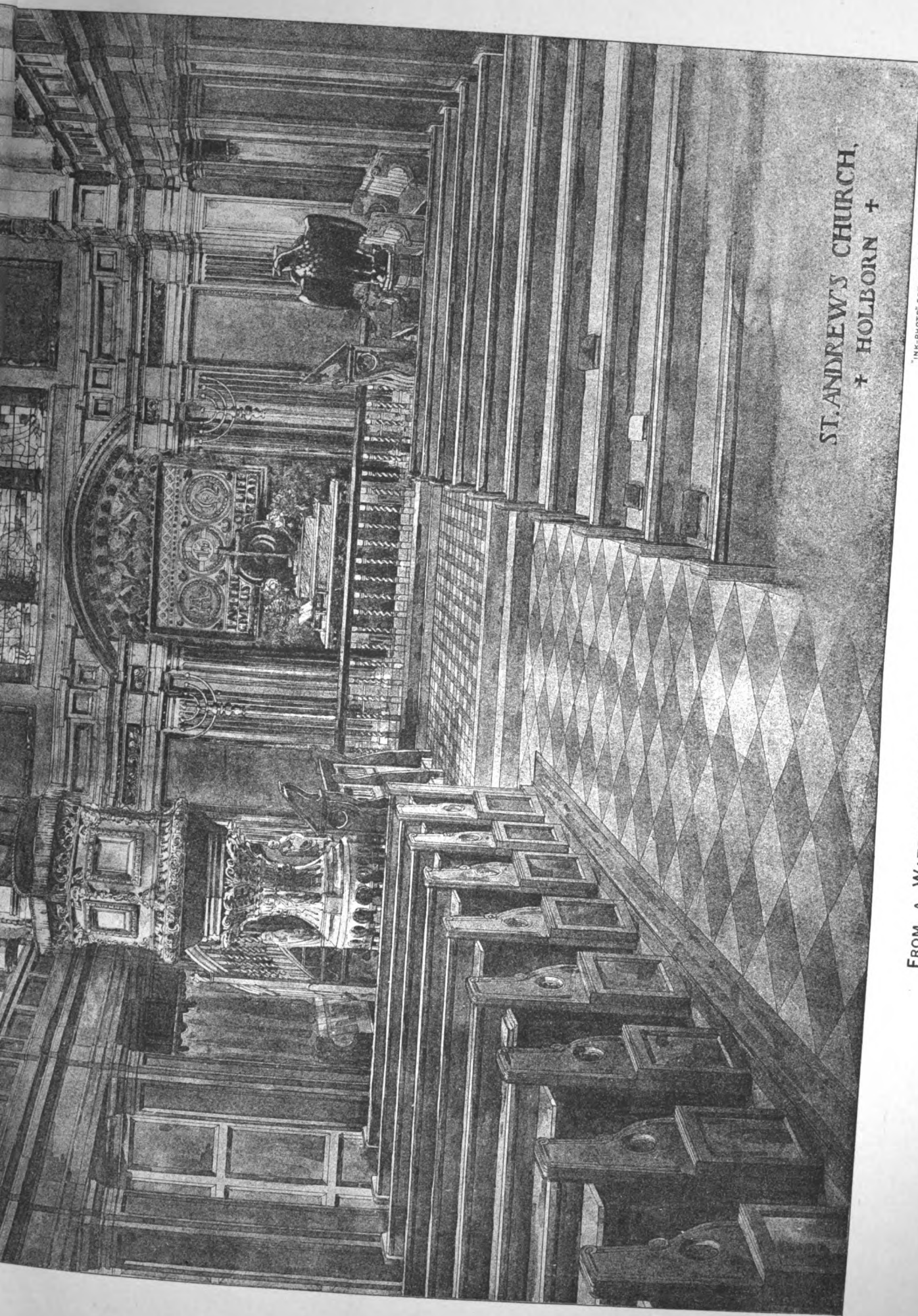
- Hendon*.—St. Mary's Parish Church: enlargement (£6,000).
Teddington.—St. Alban's Club, Langham Road. Mr. Tomalin, junr., architect.

NOTTINGHAMSHIRE.

- Basford*.—Workhouse Infirmary: Nurses' Home (£2,800).
Rainwirth.—"Robin Hood" Inn: alterations. Mr. F. P. Cook, architect, Leeming Chambers, Leeming Street, Mansfield.

The Architect, Aug. 22nd 1913.

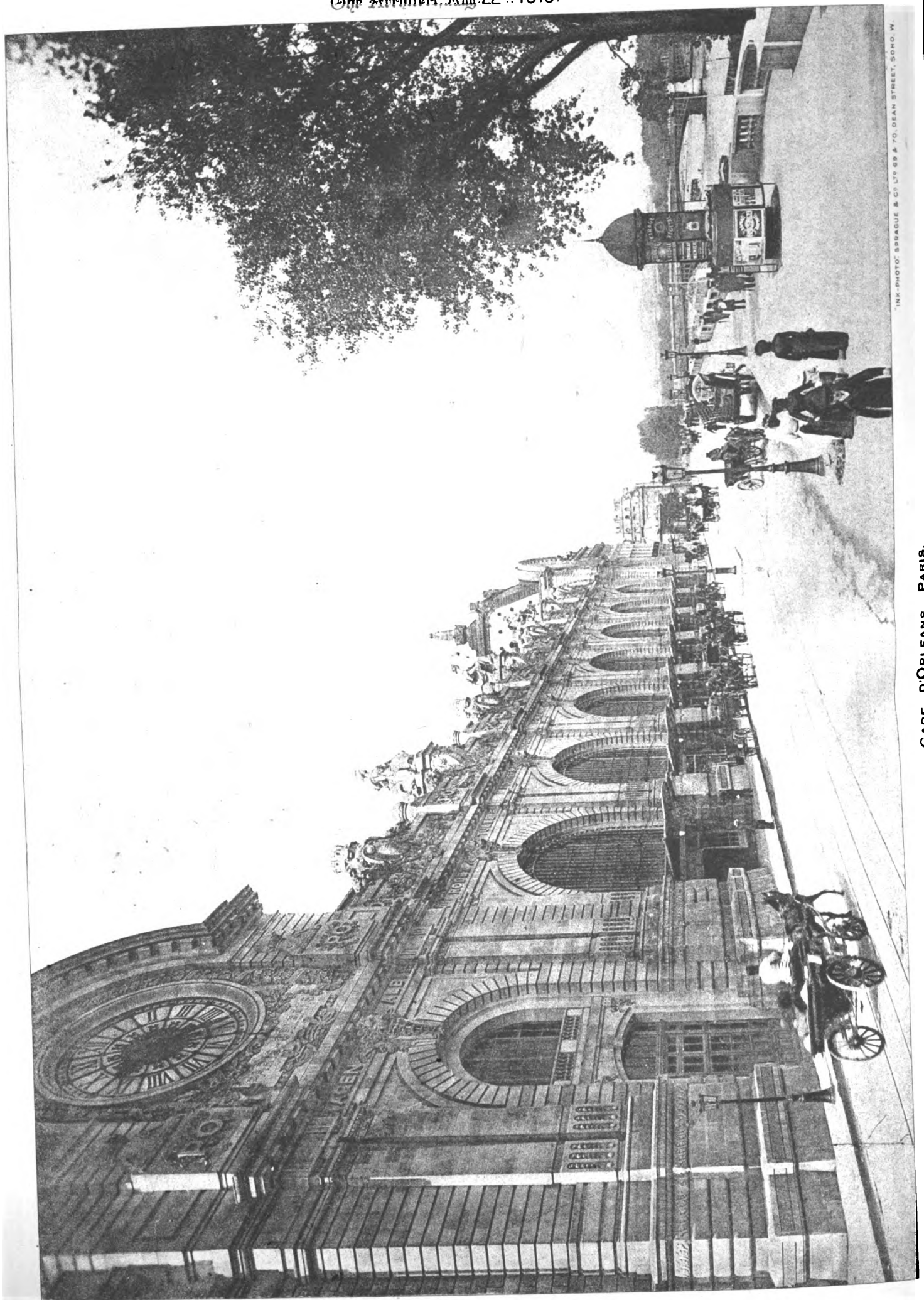




ST. ANDREW'S CHURCH,
† HOLBORN †

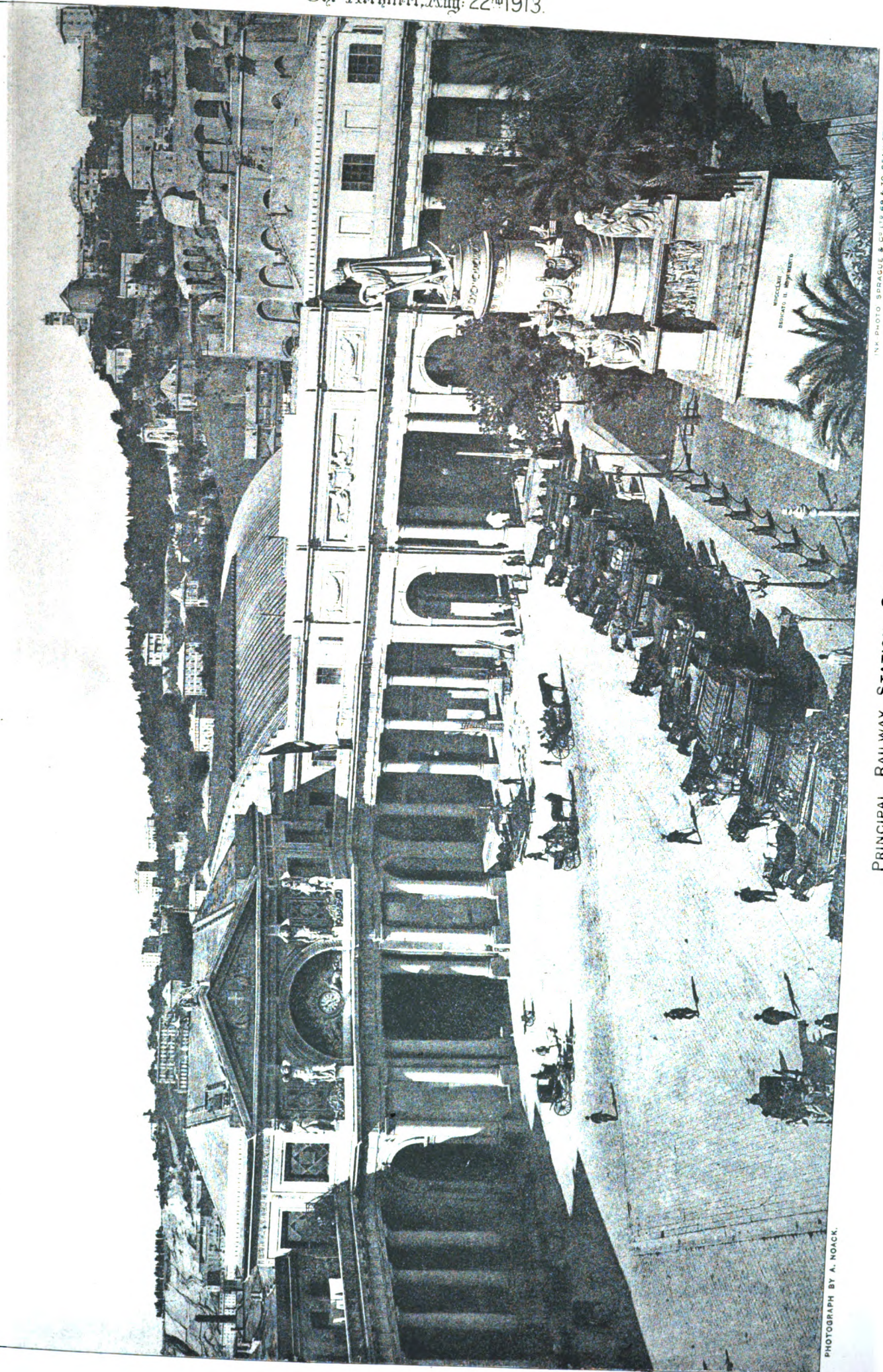
FROM A WATER-COLOUR DRAWING, BY MR. CHARLES BERNARD.

"INK-PHOTO" SPRAGUE & CO. LTD. 68 & 70, DEAN STREET, SOHO, W.



GARE D'ORLEANS, PARIS.

INK PHOTO: BRAGUE & CO 179 69 & 70, DEAN STREET, SOHO, W.



PRINCIPAL RAILWAY STATION, GENOA.

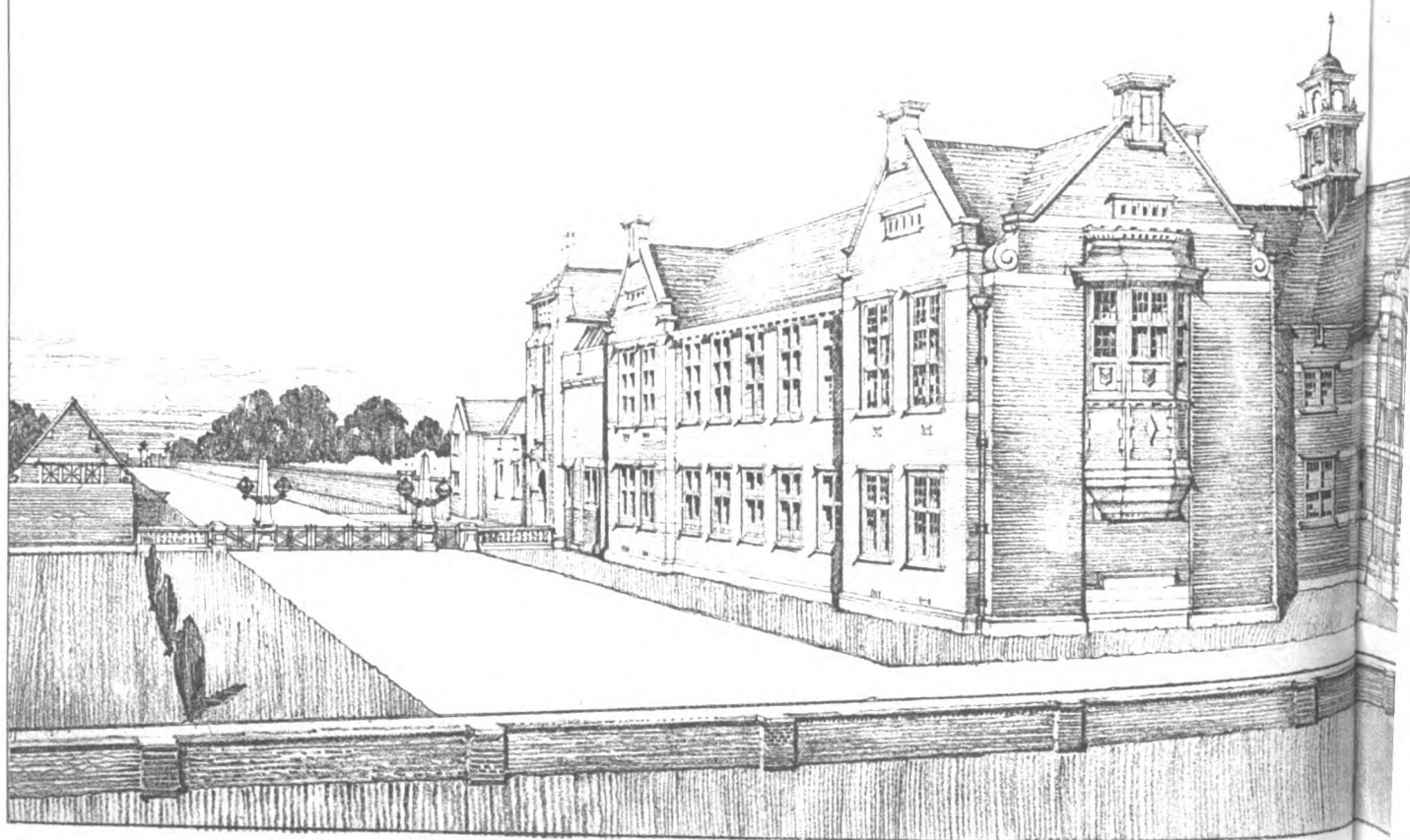
PHOTOGRAPH BY A. NOACK.

NEW PHOTO. SPRAGUE & CO. LIT. 69 & 70, DEAN STREET, SOHO, W.

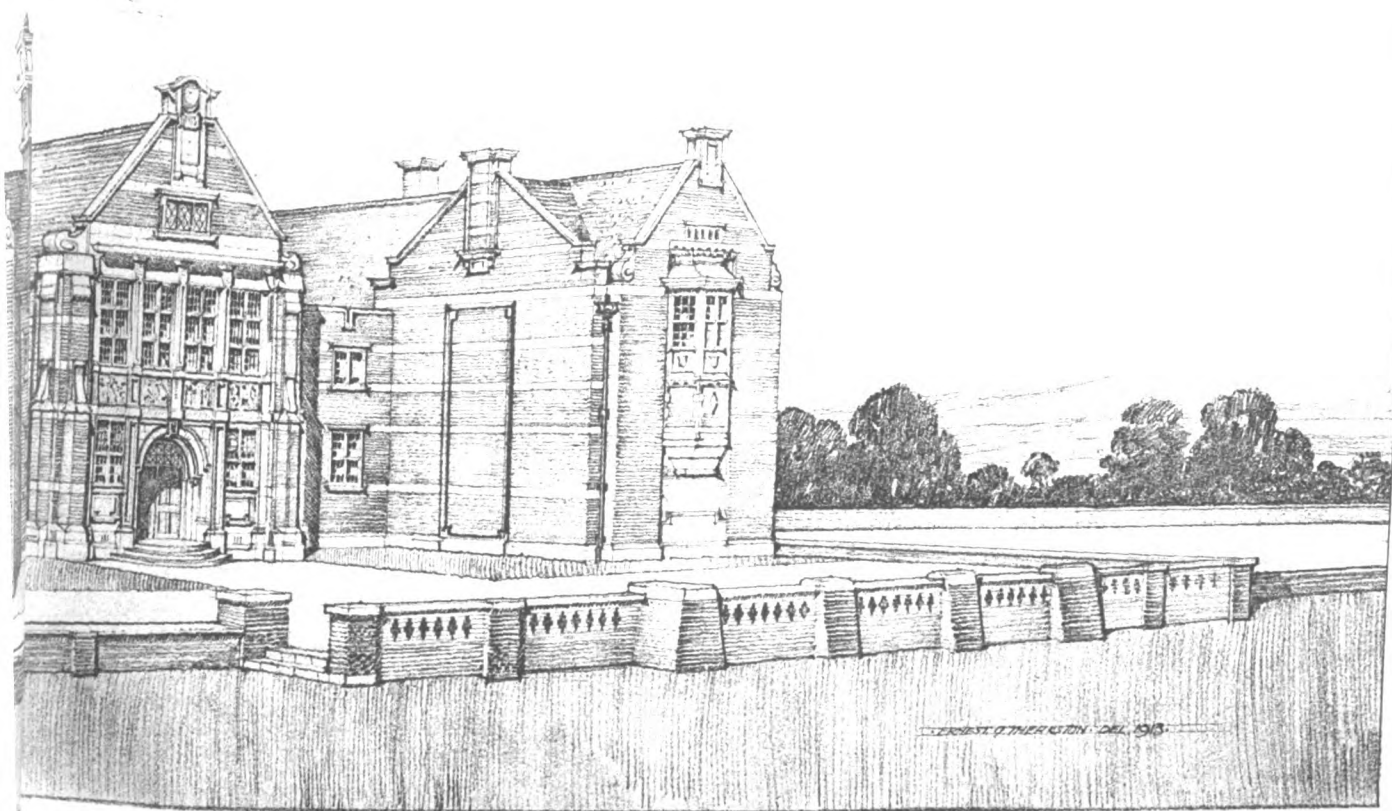
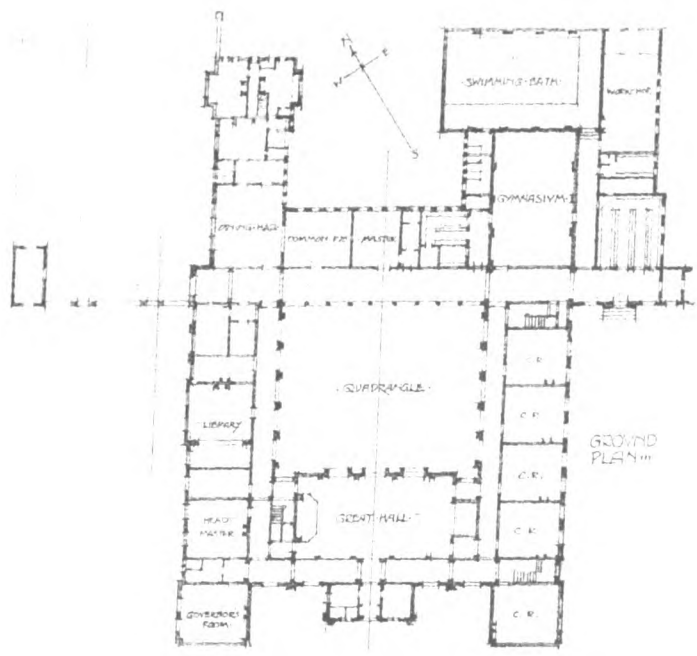
STOCKPORT
GRAMMAR
SCHOOL

REGINALD H. SPALDING
ERNEST G. THORNTON
ARCHITECTS

F.R.I.B.A.
1913



Aug 22nd 1913.



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.



MAIN ENTRANCE TO NEW TOWN HALL AT COLOGNE.—Herr BOLTE, Architect. [From Deutsche Bauzeitung.]

ENGLAND—continued.

SOMERSET.

Brushford.—Parish Room.

STAFFORDSHIRE.

Hednesford.—Bakery, &c. (£2,500). Mr. W. F. Edwards, architect, 1 Newhall Street, Birmingham. Messrs. T. Mason & Son, contractors, Station Street.

Lichfield.—Guildhall: alterations.

SURREY.

Leatherhead.—St. John's Foundation School: rebuilding. Mr. L. Martin, F.R.I.B.A., architect, Seymour House, Waterloo Place, London.

Mitcham.—St. Mark's Vicarage.

Redhill.—Public Baths, Cecil Road.

SUSSEX.

Shoreham.—Council (new) Schools (£4,300).

Alterations, &c., to existing schools (£500).

WARWICKSHIRE.

Bedworth.—Picture Palace, Croxall Street. Messrs. Whit-tai & Shute, architects.

Birmingham.—Picture Theatre, Smallbrook Street. Mr. J. Goodman, architect, 52 Menbury Road, Moseley.

Warwick.—Workhouse: additions and alterations. Mr. F. G. Cundall, architect, 4 Parade, Leamington Spa.

WORCESTERSHIRE.

Dudley.—Conversion of Swan Hotel, corner of Bush and High Streets, for London City and Midland Bank.

Shipston-on-Stour.—Picture Theatre, The Close, Church Street, for Miss Ryder.

YORKSHIRE.

Bawtry.—"Crown" Hotel: alterations, &c. Mr. E. Wilburn, architect, St. George's Chambers, St. George's Gate, Doncaster.

Brighouse.—St. Paul's Sunday Schools (£3,500). Mr. A. G. Sladdin, architect, 39 Briggate.

Flockton Green.—Working Men's Club. Mr. F. Fitton, architect, Westfield Road, Horbury.

Gomersal.—Engineering Works, off Dewsbury Road. Mr. W. Morton, architect, Central Chambers, Cleckheaton.

Leeds.—Nurses' Home, Hunslet: additions and alterations for Board of Guardians. Mr. W. E. Richardson, architect, Bothwell.

Maltby.—Hospital.

Normanton.—Ackton Hospital: extension (£5,000). County architect, Wakefield.

Premises and stables, Church Road, Altofts. Mr. A. Hartley, architect, County Chambers, Castleford.

Pontefract.—Girls' School, Northgate: additions. Mr. W. J. Tennant, architect, Ropergate.

WALES.

Aberdare.—Cinema Theatre, Aberaman. Messrs. Johnson (F.R.I.B.A.) & Richards, architects, Glebeland House, Merthyr Tydfil.

Chirk.—P.M. Church, Station Avenue.

Denbigh.—Howell's School: additions and alterations (£15,000). Mr. H. Comyns, A.R.I.B.A., architect, 16 Finsbury Circus, London.

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No. : 155 Darwen.

London Tel. No. : 2781 Gerrard.

Telegrams { "Anaglypta, London."
"Anaglypta, Darwen."

LINCRUSTA-WALTON, & CAMÉOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No. : 8769 Gerrard.

Telegrams : "Lincrusta-Walton, London."

LIGNOMUR

Works : Old Ford Road, Bow, E.

London Tel. No. : 492 East

Telegrams : "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSSEL
ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

CLARIDGE'S PATENT ASPHALTE CO., Ltd.

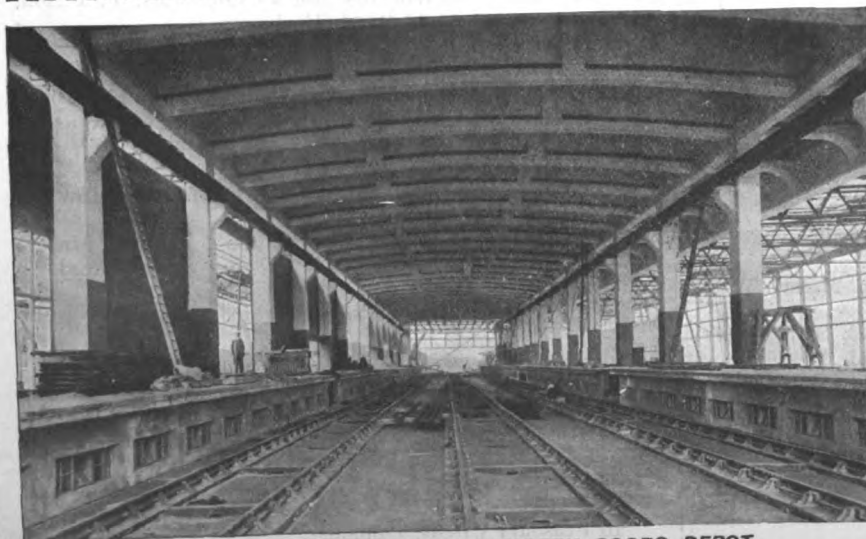
21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY—LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all classes of buildings.

They are **FIREPROOF**,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use in all parts of the world.

Arthur L. Gibson & Co.,

Radnor Works,
Strawberry Vale,
TWICKENHAM.

MANCHESTER:
33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:
79 West Regent Street.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Revenue Bill and Land.

SIR,—The abandonment of the Revenue Bill at the dictation of a few ultra political members is, I should think, the last straw in connection with a Government which has done incalculable injury to the building trades. The Chancellor, who from his speeches might have been thought to be a strong man, has once more shown that the "golden image has feet of clay." I am most desirous that this letter should not exhibit any partisan spirit, but a section of the great Liberal party seem to have absolutely captured the party leaders, who, instead of leading, have become the led. How any man who is engaged in architecture or building can give support to them is beyond my comprehension. Your own journal and the other building-trade papers have been consistent in pointing out the injustice of this form of taxation, the serious injury which has been done to one of if not our largest industry. The Chancellor has admitted it, somewhat ungraciously perhaps, promised and drafted an alteration, and then at the dictation—as one of your contemporaries styles it—of the Radical Rump connived at their action or succumbed to it. I am fully aware that politics do not interest your journal, or rather, may I put it, that you, in the conduct of your journal show no political bias, and very rightly too; but it is time that all engaged in building operations should consider the position. Are we to support a Government whose sole consideration seems the increase of taxation detrimental to the industrious class, whether as architect, contractor, or artisan, or should we not be infinitely better off by supporting those who may rightly or wrongly be in favour of a tariff on imported goods, yet have to my way of thinking shown in this matter a more just and equitable consideration than the present so-called Progressive party? I am anxious not to introduce "party" into this letter. I want your large body of readers to look at the question as I am desirous of doing, as entirely apart from politics, and this can best be done by bringing local pressure upon the member of Parliament for the reader's district, and by—when the opportunity comes—voting only for the man, whatever his politics, who will pledge himself to vote and work for the alteration of the law as it at present stands.

I regret taking up so much of your valuable space, but if I have only caused the reader of this letter to consider the subject, your space, I contend, will not have been wasted, and my time, paper, and penny stamp expended in vain. Oh, for a little less party politics and for considerably more independent action, honest endeavour, and business capacity to be exhibited by our legislators, and then, I suppose—the Millennium!—Your obedient servant

CONTRACTOR.

Manchester: August 19, 1913.

Steel Sheet Piling.

SIR,—As the article entitled "Modern Systems of Steel Sheet Piling," describing the Ransome Type D Section, was based upon information supplied by us, will you allow us to express our regret that we should have, through an incorrect statement, necessitated the writing of the letter to you which appears in your issue of August 15 over the signature of the British Steel Piling Company?

We agree that the lengths of single piling used in the Portsmouth contract exceed any lengths of Ransome piling supplied up to the present moment. In justice to ourselves, however, will you allow us to point out that the original contract in question was entered into prior to our Section D having been placed on the market? In addition, we show quite clearly in our catalogue that we are prepared to supply this section in single lengths up to 70 feet, but up to now we have not met with conditions necessitating any single lengths of piling of over 48 feet.

At the Rosyth Naval Base our section has been used for bearing piles, and, when fish-plated, was driven in total lengths of 83 feet.

As regards drawing, it is fairly obvious that any section that will drive satisfactorily can also be extracted, but straightening is usually necessary before re-using; while in

the case of our section it has actually been proved that the piles are withdrawn in bulk in a condition equal to new.

Your correspondents are less convincing when they state that they "could give many more instances of more important works than that mentioned in your article," as the present Port of London Dock Extension Works were included, and they are looked upon as being in the very first rank. Incidentally, we have supplied nearly 1,400 tons of piling for these extensions, 600 tons of which are intended to remain in position permanently.

In conclusion, we shall be very happy indeed to place anyone interested in communication with leading contractors in this country who have given preference to an up-to-date, scientifically evolved section, designed to give maximum strength with minimum weight.—Yours faithfully,

H. G. BLAKEMORE, Director.
Ransome-verMehrs Machinery Co., Ltd.

SIR,—Despite criticisms and corrigenda that might be and have been offered here and there, the series of articles which you are publishing upon the subject of steel sheet piling is one which I am perusing with considerable interest, as it is written both perspicuously and intelligently. The particulars given by the writer respecting the Ransome patent seemed sufficiently marvellous, but I see (by a letter in the current issue of your paper) that these are not by any means the limit of possibility.

We must not, however, in our appreciation of modern systems forget what is due to the almost archaic and still-used systems of timber bearing and sheet-piling.

Nor must we, sir, fail to recognise the debt of gratitude we owe to you for introducing these interesting and enlightening series of articles in your paper from time to time. I recall, amongst others, Mr. Douglas' "Modern Cold Storage and Refrigeration," Professor Smith's "Petrol Air Gas," and occasional papers on dry rot fungus and other matters. If you can give your readers some more of these practical and scientific columns I am sure that they will prove welcome to a large circle of your subscribers, not only for immediate perusal, but also for the purposes of future reference.—Faithfully yours,

A LONDON SURVEYOR.

The Crystal Palace and the Strand.

SIR,—Will you allow me to state through *The Architect and Contract Reporter* that the railway between the Crystal Palace and the Strand will link London and the business offices of the Dominions to the "life and soul of the nation," soon to be exemplified at Sydenham, from Mediævalism to modern triumphs, realistic and alive?

The glittering domes, as seen from Aldwych, suggest a vista dawn, struggling to radiate "an imperial highway," connecting the Palace and grounds of Empire to the Metropolis and the world's commerce.

Based upon the home and Dominion Governments accepting this estate as a British heritage, it will act as a stimulating air shaft to the environs of London and the country at large.

A working "Empire Model," as an engine of progress, will generate an atmosphere of confidence, a popular breeze, and trade currents for the "business Dreadnought in the Strand."

The Commonwealth building plans resemble the bows of a great vessel, and when Canada, South Africa, and New Zealand are added, including India, the Colonial Office, and the Board of Trade, absorbing the Gaiety Theatre and adjacent premises, it will represent in shape and meaning "a ship of State heading towards the news harbour," and the trade of the world.

The Crystal Palace, as the "lighthouse of the nation," sending its search rays around the coasts of commerce, will assist the captains of industry to pilot the crafts of prosperity to the homes of the people, bridging industrial conflicts, promoting rural enterprises and agricultural interests, finding new markets and youth a trade, bringing manufacturer and merchant together, promoting love of country and pride of race. A seat of international goodwill, sports centre, and public entertainment.

The overseas are willing and waiting Greater London's united action, the bulwark support of the entire kingdom.—Yours faithfully,

W. A. BAYST.

Woodford Green: August 18, 1913.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sewest, London." Telephone: Reg. at 2043.

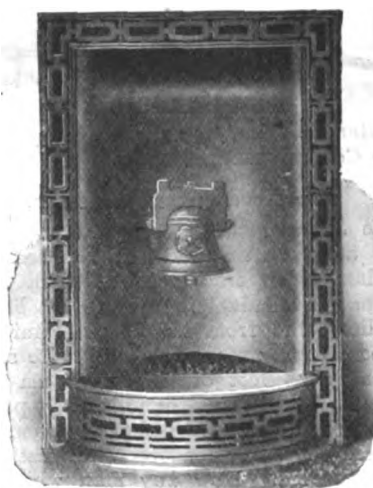
*N.B.—All above fitted with the best solid Tyres.
i.e., Wood-Milne Steelrubber—other makes to order.*

GOLD MEDAL

"BELL" GRATES

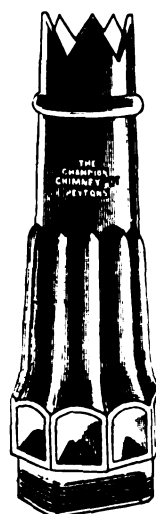
are in use all the world over, and giving the greatest satisfaction everywhere.

Illustrated Catalogue on application.



**Bell Range
& Foundry
Co.,**

16 Berners
Street,
London, W.,
and
Northampton.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the 'Champion' has been specified by LEADING ARCHITECTS, and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

— THE — Universal Concrete & Construction Co. Ltd.

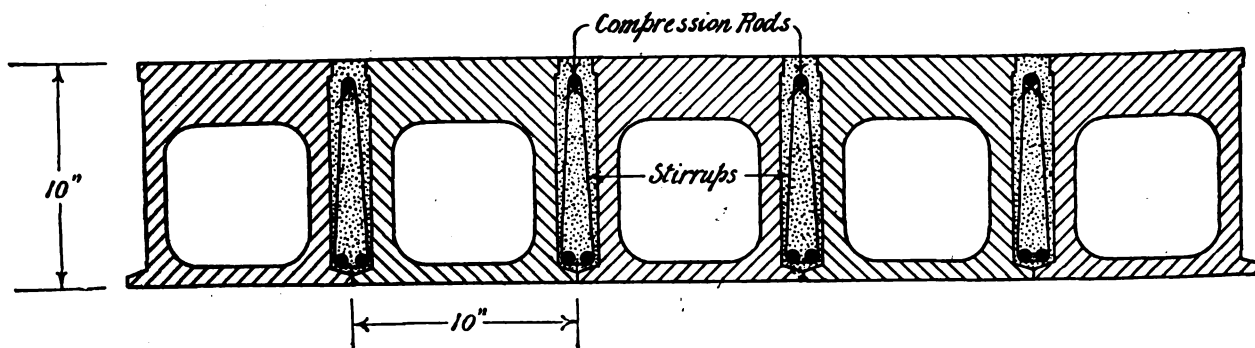
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without Beams projecting below the Ceilings, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
Architectural Association Excursion (illustrated)	185
Notes and Comments	187
Competition News	189
Illustrations:—	
A. A. Normandy Excursion Sketches	189
Architecture of Railway Stations (illustrated)	189
Schools of the Future	190
Architecture of London Highways	193
The London Society	196
Engravings and Etchings of London	196
The London Association of Master Decorators	197
England's Acres: the Story of Land Ownership	198
Dublin Municipal Art Gallery	200

	PAGE
The Building of Cheap Cottages	200
Building Progress in the Provinces	201
Correspondence	203

FORTHCOMING EVENTS.

Saturday, August 30.

Upper Norwood Athenæum: Visit to Roydon, Essex.

Monday, September 1.

Iron and Steel Institute: Annual Meeting at Brussels (four days).

Saturday, September 6.

Architectural Association Camera, Sketch, and Debate Club: Visit to Ashburnham House, Westminster, S.W. Members to meet at 2.30 P.M.

Northern Architectural Association: Students' Sketching Club Meeting.

Monday, September 8.

Sanitary Inspectors' Association: Annual Conference at Llandudno (six days).

THE ARCHITECTURAL ASSOCIATION EXCURSION.—II.

WEDNESDAY, AUGUST 13.

THE first visit on Wednesday was made to the Château de Montigny, a very interesting example of late seventeenth-century French domestic work, with an older and smaller house of the time of Louis XIII. adjoining it. There has been a residence here as far back as the twelfth century, when the property belonged to the monks of Saint Martin de Boscherville, and some of the remains of the farm buildings and enclosing garden walls may possibly date back as far as the monastic occupation. The older Louis XIII. building is built of red brick with diaper in glazed headers, the newer house in red brick with stone dressings to doors, windows and quoins on a stone plinth, and covered with a slate mansard roof with dormers. Typical window treatment of the Normandy seventeenth-century château is here adopted, with the vertical lines of the dressings to the windows carried up into two storeys. Here, as in other instances visited during the excursion, is to be seen the method adopted by the château builders of obtaining plenty of façade for their designs. The buildings are only one room deep, and for the most part en suite, lighted on both sides, so that a great length of façade is obtained for a comparatively small house. The interior of the house retains its original treatment, and in the older part still remains the spit and apparatus of winding mechanism complete, which was explained to the visitors by M. Baussard, who spoke excellent French—from an English point of view—so that his explanations were both comprehended and appreciated. It is curious how few natives speak their own language well. An Englishman's English and a Frenchman's French are not easy for a foreigner to understand. But French as spoken by an Austrian or Russian is quite readily comprehensible. Amongst the especial features of Montigny are an old well, 300 feet deep, with a remarkable well-cover in the form of a lead dome. The *girouettes* on the roofs are also quite a remarkable collection of examples of craftsmanship in lead. The outbuildings of the farm adjoining the château are decidedly picturesque. Although Montigny is not mentioned in the ordinary guide-books, it is noted in history as having been particularly celebrated for its cider and the stained-glass in the windows of the church, most of which has been removed to the Normandy museum at Rouen.

After a very pleasant two hours at Montigny, the party proceeded to Duclair for *déjeuner*, halting on the way for a leg-stretcher at Hénouville Church, the chief feature of which is a fourteenth-century western tower surmounted

with an octagonal Renaissance cupola in lead. There is a churchyard cross with a curious octagonal base decorated in alternate panels with crossbones and the mattock and shovel of the grave-digger.

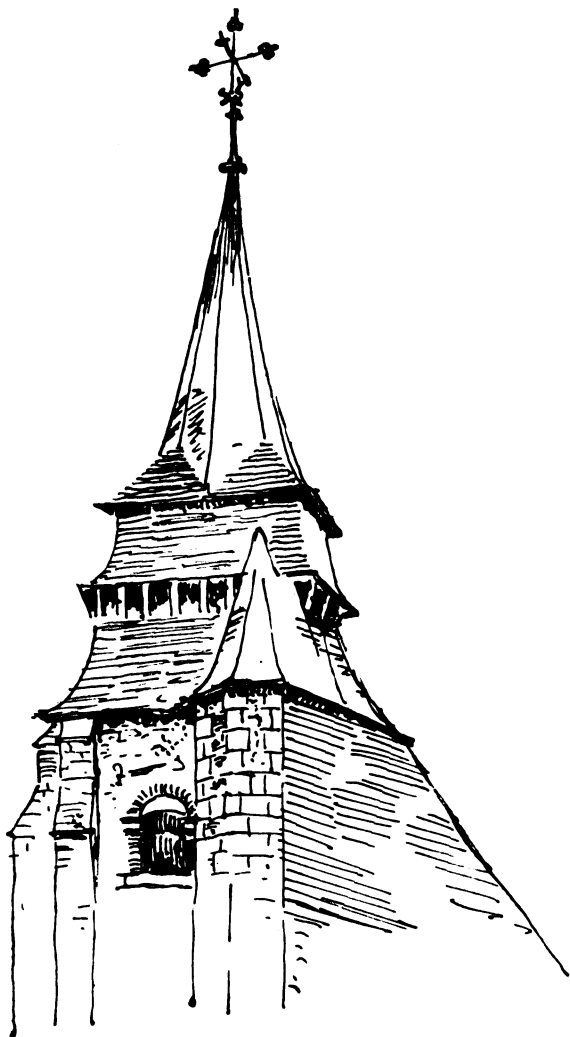
After luncheon at Duclair came another variation in the programme, from which the château at Taillis had to be omitted owing to the refusal of the owner at the last minute to admit the party. In order, therefore, to occupy the time until a later appointment a visit was made to the famous abbey of Saint Georges de Boscherville. This was founded by Raoul de Tancarville, chamberlain of the Conqueror previous to the Conquest, and consecrated in the founder's presence. Being in an excellent state of preservation, assisted by restoration, the abbey church provides an outstanding example of the great Norman churches of the eleventh century, although the interior with its staring white walls and vaulting and painted joint lines is excruciatingly new. It is, however, well for us to see occasionally what the great buildings of the past probably looked like when they were new, without the toning and softening of their crudity brought about by the benevolent hand of time. The most interesting feature of the abbey of Saint Georges de Boscherville is, however, the remains of the chapter-house, with its triple arcade of window and entrance at the west end, the detail of which is exceedingly interesting, particularly in the use of figure sculpture architectonically to some of the supporting columns. As a contrast there is within the abbey church an exceedingly rich example of Baroque carving in a confessional at the west end of the church.

From Boscherville the party drove to Quevillon for a visit to the château known as La Rivière-Bourdet, where they were received by Madame la Marquise de Montholon. The château, at one time inhabited by Voltaire, is, for the most part, of seventeenth-century date, though some parts are rather later than others. The *colombier* bears the date of 1668, which may, perhaps, be taken as that of the earlier portion. There are records, as at Montigny, of a house having existed on this spot since the thirteenth century, and in the interior may still be seen some remains of the fifteenth-century building. Architecturally, the disposition of the plan is a remarkable study of symmetrical façades of different character axially planned, and all possessing a highly interesting disposition of masses, salient and re-entering. Typical Norman materials are here employed, the façades being wholly of stone, with red brick chimneys and high-pitched slate roofs.

From Quevillon the party, on the advice of their hostess and her son-in-law, took the road back through the forest, certainly a very striking experience, but one that becomes a little wearisome after a few miles.

THURSDAY, AUGUST 14.

A rather longer drive than usual took the party on Thursday to Bosc Guerard, where the first thing seen was the church, a small building of which the chief feature is the quaint and piquant slate spire on the western tower. There is also over the west door a quaint pent roof in slate. The church contains some good Flamboyant windows and some Renaissance panelling in the chancel. The official stay at the church, however, was but brief, in order that adequate time might be given to the *manoir*, an exceptionally interesting example of seventeenth-century domestic work, the date of which is 1612. In plan a simple rectangle, surmounted by a high-pitched hipped slate roof, the lines of the building are as simple and rigid as could be imagined, but the façade is full of interest both in its general disposition and in detail. Starting



CHURCH SPIRE, BOSC GUEBARD.

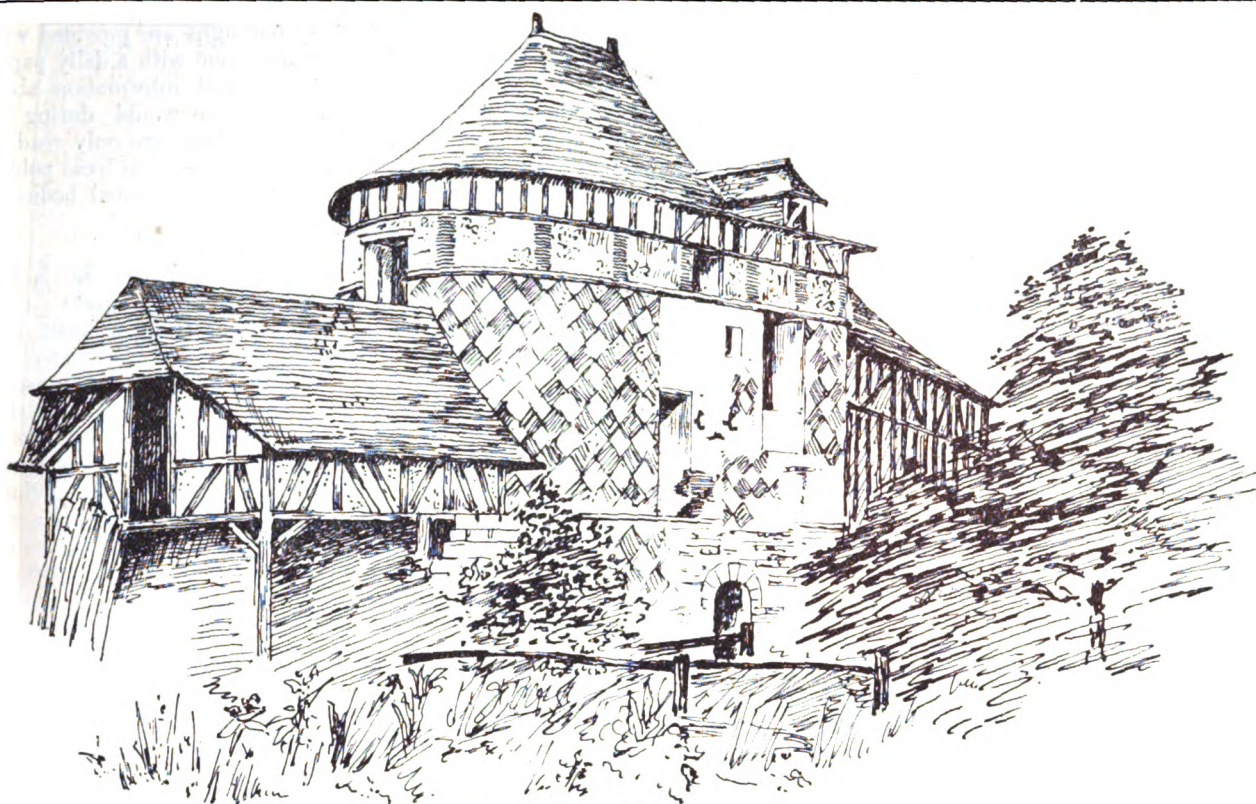
from the ground floor there is, first of all, a plinth of square-knapped flint and stone arranged in chequers and diapers of various patterns, then the ground storey of brick, also diapered, a first floor with similar treatment, a moulded string and a frieze with a number of circular holes with moulded stone margin around. The diapering of the brick walling is carried out in dark headers with some patterning in flint. There are four large windows on each storey on either side of a smaller central doorway, with smaller window above it. The scheme is thus amazingly simple, but the effectiveness of the diapering and texture of the brickwork prevent any feeling of monotony or baldness, whilst the frieze treatment gives a touch of piquancy to the whole design. These little circular holes, however, are not ornamental but practical. The great roof, with a wonderful timber construction of collars, posts, and tie beams, is floored with earth, and the holes in the external walls are for the ventilation necessary for fruit storage, so that the roof was evidently originally intended as a fruit store—this earthen floor and free ventilation being essential to

its purpose. Internally, the house possesses many interesting features besides that of the construction of the roof, a massive stair with square-shaped balusters set diagonally, and a fine kitchen fireplace in a half-basement, with panelled pilasters, a good fire back in the ground floor kitchen, containing an interesting representation of a Cupid blowing the fire under the pot being amongst the chief internal attractions. The tenant of the farm, M. Fauvel, is a great prize-winner at the agricultural meetings of the province for the excellency of his cider, and this the excursionists were obliged to sample, which they did with much pleasure and appreciation. We shall give an illustration of detail from this *manoir* next week.

The location for *déjeuner* on this day was at Clères, but on the way a short stop was made at Monville, which possesses a church of some interest and importance, with a picturesque massive central tower of eleventh-century date, which had, however, been altered early in the sixteenth century, when a good choir was added. The nave has been rebuilt in modern times. At Clères, besides luncheon, it was hoped to have included a visit to the château, but here again the members of the Architectural Association were refused admission, and their view of the fifteenth and sixteenth-century buildings—restored, however, by the Comte de Bearn—was limited to what could be seen over the churchyard wall. We shall, however, be able to give an illustration made under these unfavourable conditions. The church at Clères has lost interest through having been rebuilt in 1853, although the sepulchral crypt of the Barons of Clères has been preserved. The town, however, is very pleasingly picturesque, with a wide market-place in which there is an interesting old timbered market hall, and with the little stream of Clères running through the streets.

The next visit was made to the town of Cailly, which is famous amongst archæologists for its Romano-Gallic remains; these did not, however, trouble the excursionists, who first turned their attention to the church for a short visit, where the central thirteenth-century low square tower is almost the only feature of interest, the nave and choir having been modernised in the late eighteenth century, to the obliteration of anything remarkable in the original Romanesque building. There are, however, preserved within the church some bas-reliefs and retables of sixteenth and seventeenth-century date which possess some interest from a museum point of view. Leaving the church, the excursionists proceeded to the château of Saint Germain-sous-Cailly, a one-storey red brick building with a mansard slate roof, with dormers. There is the usual stone plinth, but as the walls are almost entirely covered with creepers and the windows were all closed with louvred shutters, the château is not exciting architecturally. The lay-out of avenues through woods radiating in several directions from the house shows, however, that Le Nôtre or his imitators have been concerned in the laying-out of the demesne. There is a chapel at one end of the château ending in a circular apse with the roof carried up as a quasi-tower.

The last item on the programme for the day was the village of Grand Tendos, but on the way thereto Fontaine-le-Bourg attracted notice, so that when Grand Tendos was reached and the *colombier* and *moulin à eau* were duly inspected according to programme, many of the party returned to Fontaine-le-Bourg, which promised more strictly architectural attraction. The village has a church with thirteenth-century baptistery and eleventh-century apse, also a curious fountain of sixteenth and seventeenth-century date; but the chief attraction to the excursionists was the walls, garden, towers, and main buildings of the sixteenth-century château, with its circular towers crowned with high-pitched roofs. Of this we shall give an illustration next week. The *colombier* at Grand Tendos is not very remarkable, though of circular plan, the walls treated with alternate squares of flint and brick arranged in



MOULIN A EAU, GRAND TENDOS.

lozenge fashion. The mill is not only picturesque, but interesting also, as a curious example of similar diapering in red brick and flint. As a mill it is now ruined, and simply serves as the outbuildings of a small farm.

(To be concluded.)

NOTES AND COMMENTS.

In the discussion between Sir Edwin Durning-Lawrence and Mr. W. D. Caröe, which is being conducted in the *Times*, on the subject of new timber for the repair of Westminster Hall roof, Sir Edwin certainly makes a good point in emphasising the damage done to the oak by worms, but, like most enthusiasts, he claims too much. It is useless for him to reiterate his assertion that "teak, when fully seasoned, is of slightly less weight than English oak, but it is of enormously greater strength," because given equally good qualities, oak is stronger than teak, bulk for bulk, though teak has the advantage in strength, weight for weight—not an enormous advantage, but an appreciable, if slight, advantage. Sir Edwin also claims that teak "of really good quality and perfectly seasoned is not liable to shrink or swell or split or twist, and is absolutely proof against the attacks of dry rot and of worm." On the other hand, Mr. Caröe is undoubtedly right in showing that some teak is attacked by worm. At the present time in this country it is difficult to get hard, sound, seasoned teak wood, and whatever claims may justly be made by Sir Edwin for highest quality teak are discounted by the difficulty of obtaining wood of sufficiently high quality to make good those claims. On the other hand, oak can be creosoted, and would then, in our opinion, be equally proof against both dry rot and worm as the best of teak.

The new Stationery Office forms the subject of an article in the *Morning Post* on the modern use of reinforced concrete, which we are glad to see in a daily paper appealing to the general public, although the description of the material and its advantages are, to the professional reader, somewhat rudimentary.

As if the building trade had not enough depression at the present time, the workmen in London must needs

threaten a great strike, and men employed in building the new hotel which is being erected by Messrs. J. Lyons & Co., at Piccadilly Circus, struck work on the ground that the contractors, Messrs. J. Mowlem & Co., had engaged several non-union labourers. We are glad to see that Messrs. Mowlem have taken a firm stand on the principle that non-union workmen have a "right to work" equally with those who belong to a trade-union. We do not imagine that the present time is auspicious for any strikes in the building trade in London, even with the help of "sympathetic" participants, as there are probably plenty of qualified workmen to be obtained independently of the trade-unions.

The restoration of the ancient refectory of Chester Cathedral, for which an appeal is now being made by the Dean and Chapter, is a particularly interesting proposition in view of the outstanding characteristic of the building, which, as Mr. G. Gilbert Scott points out, is its great size. In his scheme of restoration Mr. Scott proposes to repair the foundations where defective, to restore the large east window, now partly filled in with brickwork, to construct a new oak roof, to scrape the grey limewash from the walls, to expose the stone floor, and, by removing the brick cross-wall and wooden gallery which now intersect the original building, to open out the refectory from end to end. If this were done the Dean and Chapter would be justified in the statement in their appeal:—

"Chester might have as noble a room as could be found in all England if the refectory were restored to its former proportions. Every one who sees it in its present state, and can realise what it might be, must be impressed with the desire that its ancient glory should be recovered. The Gleadowe family have most generously undertaken to restore the east wall with its great window as a memorial to the late Richard W. Gleadowe, at one time headmaster of the King's School (then held in the refectory), who was appointed vicar of Neston in 1853, and honorary canon of Chester Cathedral in 1881."

The discussion in the Dublin papers on the proposed art gallery to contain the conditional gift of Sir Hugh Lane appears now to have degenerated into a regular Donnybrook Fair kind of squabble. Numerous corra-

spondents are hurling all sorts of personalities and irrational objections to the site, the pictures, the donor, and the architect. We cannot imagine that it will be long before Sir Hugh Lane, in common with every other decent-minded person, will be heartily sick of the whole affair and remove the cause of contention by withdrawing his offer to present the pictures to the City of Dublin.

In his annual report Dr. Alfred Edwin Harris, Medical Officer of Health for Islington, dilates on the absence of pride amongst Londoners in the boroughs in which they were born or in which they dwell. The possible reason for this is the fact that the Londoner's interests are not confined to that particular section of the Metropolis with which he may happen to be connected, either by birth or residence. He probably, to begin with, has his interests divided between the borough in which he was born and that in which, for the present, he resides. Then again, it is almost certain that his business interests will be connected with some other part of the Metropolis. Another reason for lack of interest amongst resident Londoners is that a very large proportion of them are immigrants from the provinces. Pride of their birthplace is centred in some provincial town or country village, as witness the success of the many county associations that exist in London to maintain the local patriotism of those who have come from counties outside the twelve mile radius.

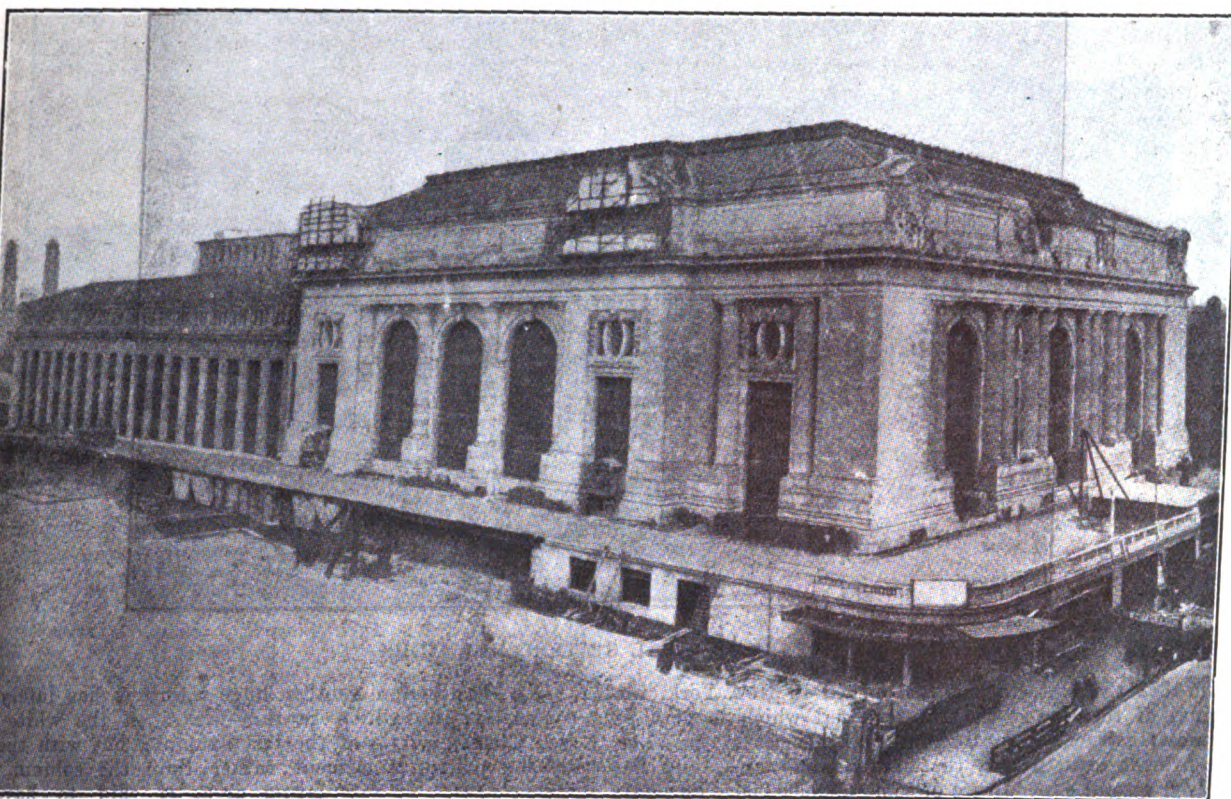
Dr. Harris says: "It is a fact, which it is almost impossible to gainsay, that as the separate entities which form the great colony of London become closer and closer knit together, through the extension of their buildings, so that it is no longer possible to recognise where one borough begins and another ends, the great body of their residents take less and less interest in them. Thus, to mention only the older of these places, the citizens of London, the residents of Westminster, or of Chelsea, or of Islington, take less pride in the place in which they were born, or in which they dwell, than preceding generations of their dwellers did. They have become more and more citizens of the great community known generically as London, and less and less Londoners, Westminsterians, Chelseans, or Islingtonians. When it is admitted that the interest of Londoners is mainly concentrated on London as a whole, yet even such interest falls far short of that which the Novocastrian takes in Newcastle, the Manchester man in Manchester, the Liverpoolian in Liverpool, the Bristolian in Bristol, or the citizen of any great town of the country in the city of which he is a native, and whose pride in his birthplace is not lost even when he migrates to London, where he becomes a cypher among its teeming millions. His birthplace is for him something to be proud of; it is part of his nature, and he can no more forget it than he can the parents who begot him. Pity it is that the same cannot be said of Islingtonians, and other people dwelling in the various boroughs which constitute our great Metropolis. Were it otherwise, more interest would be taken in their municipal and parochial affairs, and more of their citizens would show that interest by coming forward to participate in the management of those local institutions which are rightly deemed of such great importance in provincial towns, and to establish literary and other kindred associations which are of such advantage in arousing those intellectual and scientific activities which do so much good in other places. In Islington, however, these institutions are only noticeable by their absence; and yet Islington is the seventh greatest aggregation of human beings in England and Wales, the eighth in Great Britain, and the ninth in Great Britain and Ireland. These institutions are sadly lacking in the boroughs of London, and, as a result, there is wanting that local and municipal patriotism which is created and fostered by them, and which alone makes all men proud of their place of birth or of their adopted home. But there is perhaps another reason. The London daily Press does not cater for local

news. It is true that many boroughs are provided with weekly local papers, and at least one with a daily paper, which, to their credit, supply full information about by the landlord was implied that he would, during the local affairs, but, unfortunately, these are only read by the comparatively few who are interested in local politics or in the proceedings of their local municipal bodies."

The proposal to turn the Crystal Palace into a Folk Museum is one which has our cordial support. The development of these institutions on the Continent, more particularly in Sweden, Norway, and Germany, has shown clearly how particularly valuable such museums are. To view in the ordinary museums such as those at Bloomsbury and South Kensington collections of isolated objects, even though they may be of surpassing antiquity or artistic beauty, cannot, to the ordinary visitor, produce an impression akin to that in a well-arranged Folk Museum, where the building and its contents illustrate completely the life of some particular epoch of his ancestors.

The issue by the Local Government Board for the first time of a separate volume for the Housing Section of their annual report marks the importance of the position now accorded to housing amongst social questions. Thus the activity of medical officers in inspection and in cases where, under the Act of 1909, an undertaking of local authorities in dealing with houses unfit for habitation and with deficiencies of housing accommodation is quickened, and the amount of work thus done in 1912 far exceeds that of any previous year. During the year ended March 31, 1912, local authorities issued notices requiring repairs to be done to 43,781 houses tenancy, keep the house in all respects reasonably fit for human habitation. Of these notices 31,289 were satisfactorily complied with by the landlords, whilst the remainder were for the most part dealt with by closing orders. During the year under review the Board authorised 69 local authorities to borrow £403,158 for the purpose of providing dwelling-houses. This sum represents the cost approximately of 279 acres of land, 1,880 dwellings or tenements, and incidental street works, drainage, fencing, &c. £59,557 of the above amount was for the purchase of 40 acres of land and the erection of 331 houses by rural district councils. The rent proposed to be charged varied from 2s. to 10s. per week.

The position of the town-planning movement is also to be readily understood from the information given in the Board's report. Up to the end of March 1913 the Board had authorised the preparation or adoption of 33 schemes by 27 local authorities, involving a total area of more than 50,000 acres, or over 78 square miles. Four complete schemes have been submitted to the Board. Two were prepared by the Corporation of Birmingham, one by the Corporation of Rochdale, and the other by the Urban District Council of Ruislip-Northwood. In the Birmingham scheme no attempt was made to regulate or control to any great extent the architectural features of the buildings to be erected. The Ruislip-Northwood scheme (which relates to 5,906 acres), on the other hand, contains architectural provisions. Among the schemes the preparation of which was authorised by the Board in the year 1912-13 may be noted one of 1,044 acres in Finchley, one of 4,266 acres in the borough and rural district of Luton, one of 1,860 acres in the urban districts of Twickenham, Heston, and Isleworth, and one of 1,530 acres in Walthamstow. In addition, 11 local authorities have applied for authority to prepare schemes involving some 20,000 acres, and the Board have information that some 111 others, many of them in the Greater London area, are considering the question of preparing town-planning schemes.



GRAND CENTRAL TERMINAL, NEW YORK.

COMPETITION NEWS.

MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite architects to submit before January 2 designs in competition for additional new buildings and alterations on the existing Exchange buildings. The Board have appointed Mr. James S. Gibson, F.R.I.B.A., 5 Old Bond Street, London, W., to act as assessor.

MOSSLER.—The Education Committee have rescinded their previous resolution as to the adoption of plans in the architectural competition for the proposed Livingstone Council School, and have decided to accept those sent in by Messrs. Winder & Taylor, of Oldham.

ILLUSTRATIONS.

ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.

Our illustrations this week are reproduced from drawings made by Mr. L. Sutton Wood on the Architectural Association excursion, and show views of the château at Martainville, the south porch at Ry Church, the entrance to the château farm at Montigny, the colombier at Boos, and the church of Long Paon, at Darnétal.

We shall publish further drawings by Mr. Sutton Wood next week.

Owing to the recent closing of the Birkbeck School of Art and the dispersal of the students, some 150 in number, an effort is being made to induce the Corporation of London to establish an art school similar in character to, and if possible in the same building as, the Guildhall School of Music.

At a special meeting of the County Clare Sanatorium Committee the election of an architect and engineer to carry out the work of extending the existing sanatorium, and equipping the Central Dispensary under the tuberculosis scheme for the county, took place. There were four candidates—Messrs. Michael Tierney, C.E., Ennis; G. R. Milward, C.E., Ennis; W. H. Allen, C.E., Ennis; and J. O'Malley, C.E., Limerick. Mr. Tierney withdrew after his application had been read, and on a poll each of the others received six votes. The hon. secretary was called on to vote as a member of the Committee, and he voted for Mr. Allen, who was declared duly elected.

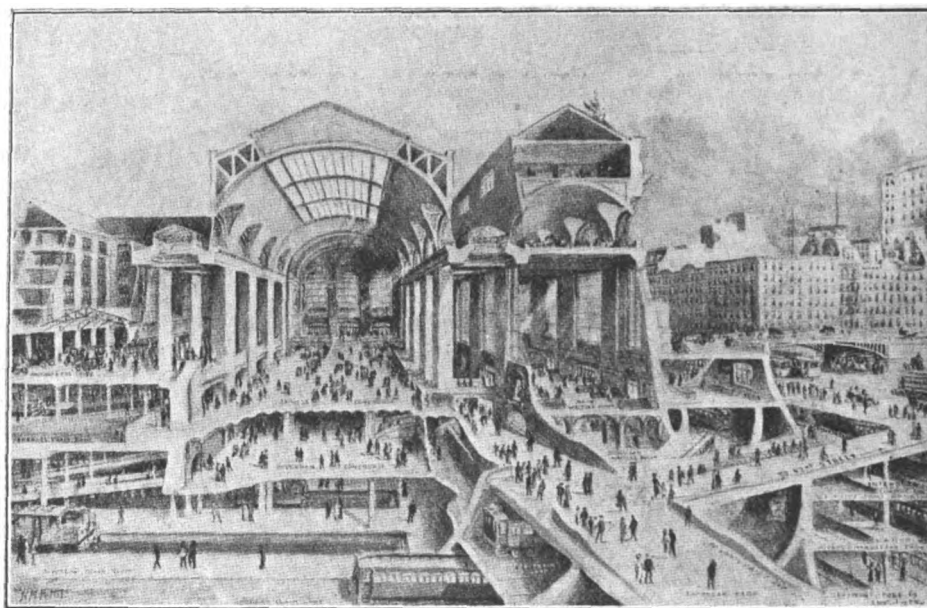
THE ARCHITECTURE OF RAILWAY STATIONS IV.

A good deal of misunderstanding exists in England as to the present condition of railway architecture in America. Certain illustrated articles in the professional magazines have created an impression that this branch of building in the States has attained a degree of luxury comparable with the most splendid achievements of Imperial Rome.

To a large extent this impression is erroneous. The railway was imported into America about the time that it reached Belgium—that is to say, a few years later than its invention in England, and many years before it was adopted in Italy and the backward countries of Europe. But the hustling temperament of our cousins in the New World and the very rapidity of their progress has not been all to the good in this matter, whereas our railway development—phenomenal as it may seem—was after some twenty years a matter of gradual growth to meet the extending needs of our population. Thus also in Germany and France there was a natural expansion after the first boom had exhausted itself. The evolution of the terminus has been similarly slow and normal.

In America, on the other hand, the great area of the country and the wealth of its untapped resources—combined, perhaps, with the hectic character of its people—caused a feverish haste in railway pioneering, while the wonderful rise of its greater cities has never allowed time for providing stations which would meet the wants of a population thirty years later. The population of the principal towns has doubled in the last twenty years. The Grand Central terminus in New York was rebuilt some twelve years ago for the third time, but the fourth reconstruction on a much larger scale is already well advanced. The latest great station at Chicago is being designed to accommodate a traffic five times as large as that now dealt with.

Up to a recent date some of the features long familiar in England—the raised platform, the arrival and departure division, and the question of a dignified entrance—had hardly been considered in the States. But the magnitude of ever-changing requirements has caused American engineers to approach the problem in a much more determined way, and the remarkable aptitude of present-day American architects for dealing with monumental design has helped them in collaboration to cause a revolution in the terminus. It is in these modern stations that the interest of American railway architecture lies.



GRAND CENTRAL STATION. NEW YORK.

In 1832 the first station was opened in New York, the original of the Grand Central terminal which is perhaps the most instructive of all rebuilding schemes of the kind. The present structure is the fifth of its name, and has involved a total expenditure of some £30,000,000. Formerly the trains were worked by steam and approached the station in tunnels, but with the decision of the directorate to electrify the line it became possible to utilise the greater part of the space above the lines, which are depressed below street-level. This has, of course, been done in London to some extent in recent reconstructions, but on a small scale. In this case in New York a large part of the vast outlay is devoted to two hotels, an opera house, clubs, and many blocks of houses and flats, all standing over the train shed, which literally forms their basement. The station buildings proper, palatial as they are, thus occupy only a comparatively small portion of the valuable area above the ground. Engineering plays an even larger part in American terminals than in our own, but the architecture of these mammoth structures is of a higher level than in this country, and stone is usually employed throughout. The sound grasp of Classical detail so universal among architects in the States is often the result of a Paris training, and was displayed in the interesting Town-Planning Exhibition held in London a year or two ago. In no class of their work does their ability appear to greater advantage than in their station designs.

Another equally modern and colossal example is the Pennsylvania terminus, by which the line bearing that name has just been brought under two rivers into the heart of New York city at a cost of £23,000,000, a project only rendered possible by electrification. This is perhaps the most beautiful and certainly the most wonderful station in the world, second only to the Gare St. Lazare at Paris in point of traffic and area. Its great rectangular exterior is treated on severely Classical lines, and is devoid of ornament. Its whole ambit is crowned by one fine cornice, the walls being surrounded on the principal portions by a colonnade of open columns within which vehicles approach the entrances. The central feature towers high above the lofty blocks of station offices surrounding it on all sides, and is based on the design of the vast *thermæ* of Rome. Within is a waiting-hall of such stupendous proportions that mere figures can convey no idea of its vastness, and so magnificent that no greater artistic triumph can be imagined in the highest achievements of Caracalla or Diocletian. It does not appear to the writer any exaggeration to state that this is the noblest room ever conceived by the mind of man. Were Ruskin alive, it would be interesting to obtain his views as to the morality of devoting such perfect art to what he regarded as so base a purpose.

The steelwork within the train-shed is for the most part exposed, and the effect is admirable. The platforms are raised as in England, and passengers arriving at the station find themselves on a lower-level concourse than those departing.

At Washington another huge terminus has lately been completed—the Union Station—again in the white stone and Classical style of the last example, but with the arch as the principal element rather than the column. The “concourse,” or circulating area, is said to have the greatest floor space of any room in the world, and is destined to accommodate the crowd which gathers at the administrative capital of the States every fourth year. Washington has been laid out with a deliberate desire for beauty which has never been understood in this country save in the new Cathays Park quarter of Cardiff, and this station, as the second largest building of the city, forms an integral part of the scheme. The waiting-room is another admirable example, recalling the Roman *thermæ*.

At Chicago the North-Western Railway terminus is the first accomplished of a series of reconstructions recently projected, and has cost £4,750,000, of which about half was spent in acquiring property for extension—455 buildings being demolished during the undertaking. This beautiful station is another variant of Classical design on a monumental scale, and the same mastery of detail is apparent throughout.

Lesser examples illustrating the same trend, though still very large buildings, are the terminals at New Haven (Connecticut), Kansas City, Baltimore, Providence (R.I.), Omaha (Nebraska), and Seattle; while a charming new type for the sunbaked Southern States is to be seen in the original and striking station buildings at Albuquerque (New Mexico), and at Oakland (California).

(To be continued.)

SCHOOLS OF THE FUTURE.

IN the section devoted to engineering and architecture at the Royal Sanitary Institute Congress at Exeter, Mr. James Jerman, F.R.I.B.A., contributed a paper on “School Buildings and their Future,” in which he said:—

The intimation that important changes are pending in the administration of the education work of this country naturally arouses in the minds of those who have to do with the provision of school buildings thoughts of changes in methods and altered requirements.

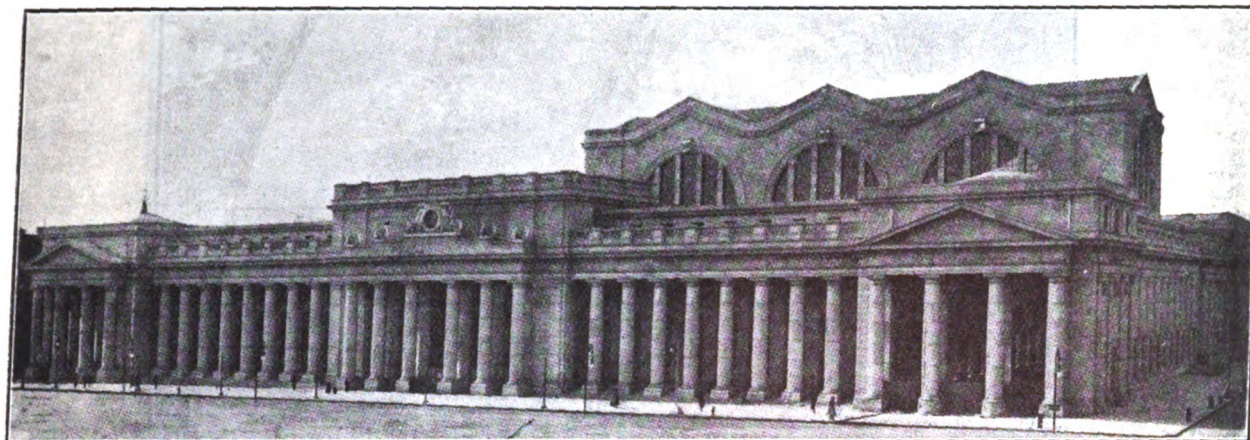
The element of cost governs procedure in nearly every instance, but the varied conditions at the present time make it extremely difficult to correlate accommodation and cost.

For example, how is it possible to get any common basis where requirements differ so widely regarding floor space in the three main divisions of school building, as influencing the areas of classrooms:—Secondary schools, special schools, elementary schools?

Each circumstance varies with the curricula to a certain extent, but this alone cannot account for the wide margin of variation indicated under present regulations.

Sizes of Classrooms.

The question of floor area per child has been selected as a topic for discussion, as the numbers to be accommodated



RAILWAY ARCHITECTURE.—PENNSYLVANIA RAILWAY STATION, NEW YORK.

in each class under one active teacher is a fact of immense importance in dealing with school planning.

The reduction in the number of children in the classes in elementary schools, especially, makes it difficult to cope with the varying conditions. This is intensified by the growing desire to assemble all classes in individual classrooms, and to abandon the collection of several classes in main rooms imperfectly divided by curtains of various materials. The comparatively small classes for secondary schools, and the still smaller classes for special classes, provide a reasonable and workable basis for planning, but the difficulty lies in the other schools where the bulk of our population have to be educated.

It is not a question, apparently, of how many children a competent teacher can effectively teach in a well-designed, lighted, warmed, and ventilated classroom, but rather how to cope with the varying numbers into which the head teacher finds it necessary to arrange the classes. Can, therefore, the teacher be assisted in the future by designing the school building in such a way that he may allocate rooms to suit the size of the classes without entailing additional building?

By the present method of planning the head teacher has no opportunity of diminishing or enlarging classes for special work or teaching.

Instead of certain classes being permanently allocated to certain rooms, would it not be preferable to provide rooms of varying sizes for classes from twenty up to sixty, and which classes might proceed to these rooms from wide corridors and verandahs without disturbing the school generally? On occasions, upper standards and special classes should have opportunity for assembling in rooms of small sizes, instead of having to occupy the stereotyped regulation classrooms for forty, fifty, or sixty, with the consequent overcrowding in the case of the rest of the school. It is suggested that there should be more elasticity in classroom dimensions available for the teacher.

Outdoor Classes.

The open-air tendency of the present generation demands that suitable accommodation should be provided, especially in country schools, for teaching in the open. Could not such accommodation be arranged in connection with the play-shed? which should be a better and more useful structure than the usual one: mere caverns with no attempt at ventilation, lighting, or comfort. This suggestion might combine the two purposes; but does not the verandah attached to the main building more conveniently meet the case? The position and aspect of such a verandah must affect the future planning of schools, as there are problems of interference with lighting and increased costs to be met. Should the verandah make the corridor necessary, a reduction in cost might be effected.

Positions of School Buildings.

In the past there has been a tendency to preserve or maintain sites close to the dwellings of the school children, the plea of convenience and accessibility being urged. Surely on no grounds can this be defended; the outskirts of a town afford opportunities for acquiring larger sites at less cost, and reasonable outlook in selection appears to be all that is needed to properly place new buildings in

the future. Town-planning methods should vastly facilitate the future positions for school sites, and only those who had to face the difficulties of obtaining sites in the earlier days of 1870 can explain the hemmed-in and very restricted school sites then chosen in out-of-the-way places and side streets.

Size of School Sites.

Without influencing to any material extent the cost of school buildings, a much larger and more shapely site would in the future enable the architect to spread his buildings to advantage and command a suitable aspect, not too near the boundaries. It may be expected that future regulations will require much increased areas for sites beyond that now stated. This is suggested, having regard to the provision of workshops, cookery, and laundry classrooms, outdoor instruction and organised games, giving more ample opportunities for both paved and natural surfaces to the playgrounds, besides garden plots with their tool-houses.

Sanitation.

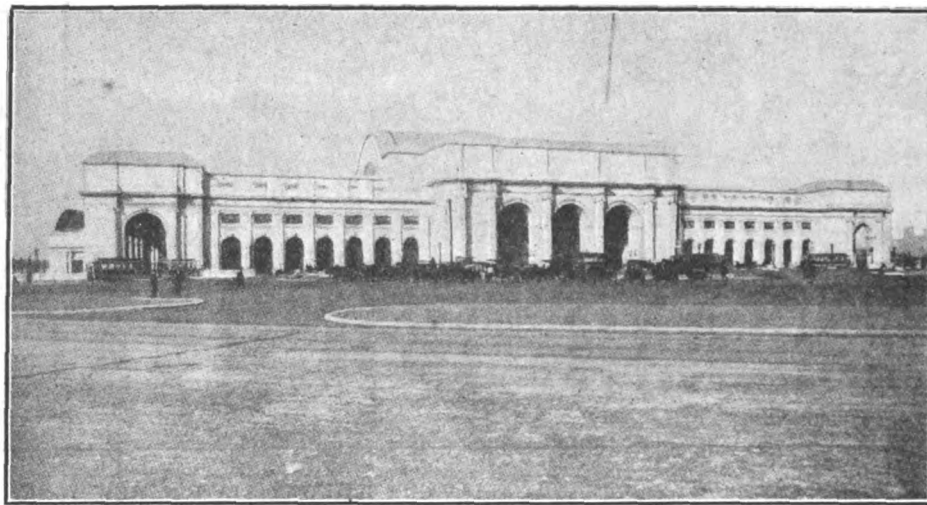
Whilst ordinary sanitary arrangements are possible in most districts, there is still a lamentable want of water supply in too great a number of instances. The provision of accommodation to give opportunity for the use of a bath, or simple forms of spray baths, should be possible in every school.

Meals.

Some accommodation should also be provided in the future for the numbers of children who, from force of circumstances, must remain over the dinner hour, and in many cases have not even the shelter of a play-shed. The verandahs may offer some suitable accommodation, but a mess-room would be more appropriate with opportunities for obtaining water in winter and summer. The workman has already secured this privilege when engaged on building and engineering works, and is it too much to ask that the workmen's children should be equally afforded shelter and rest for their mid-day meal?

New Methods of Construction.

This offers a tempting subject for discussion, and in itself might provoke expressions of opinion covering a very large area. May it, however, be premised that any idea of experimental or novel methods of construction would be considered unsatisfactory when the safety and possibly the health of the rising generation would be imperilled or even affected? The endeavour to gain experience at such great cost and anxiety would suggest that such experiments be first tried and proved in buildings devoted to less importance than the education of children. It may be that provision for periodical and rigorous inspection of buildings constructed in a novel manner may render them safe and serviceable, but it would seem opposed to all the traditions of good building that such important and public buildings should be constructed other than in the safest and soundest manner possible. The abolition of inaccessible spaces between floors and in roofs would be a gain, minimising risks of infection and more wholesome conditions. Solid flat roofs, instead of the dust-gathering surfaces over porous plastered ceilings in the ordinary construction of slated and tiled roofs, would be welcomed as a provision



RAILWAY ARCHITECTURE.—UNION STATION, WASHINGTON, D.C.

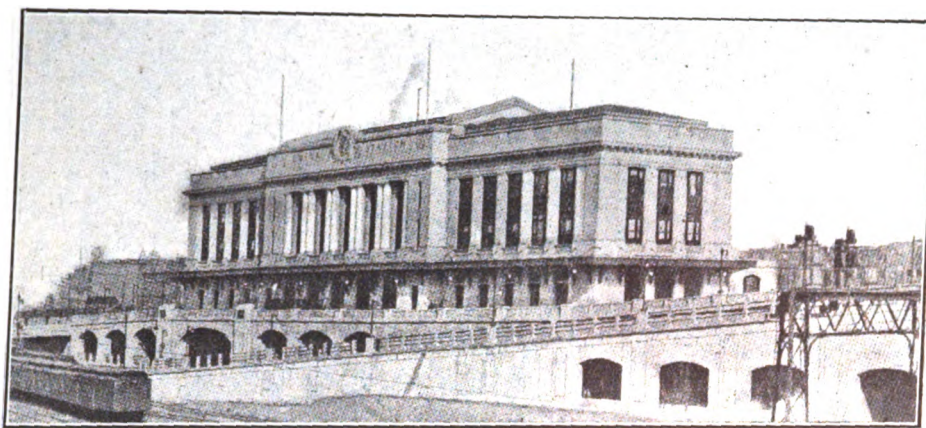
in future regulations. The want of a thoroughly sound, sanitary, durable, jointless floor at a reasonable cost, suitable for the hard wear of our public schools, is much felt. The entire prohibition of interior walls of uncovered brick-work, with their dust-collecting joints and uneven rough surfaces, however well coated, must give way to an impervious, hard, smooth cement material, and a glazed surface where there is any friction would appear to be a necessity for absolute cleanliness. For the future there is not sufficient information available at present to predict the extent of the coming changes; it may, however, be regarded as probable that the cheapening of school buildings will not find favour, nor be found possible, if suitable provision is to be made for altered and increased educational methods; that more spacious accommodation will be desired, on the lines of the more generous area provided in American school buildings, and that the raising the age of school attendance, with continuity for after study, will obviously require a departure in the former recognised arrangements.

DISCUSSION.

Mr. Percy Morris (Devon County architect) said it was difficult to consider schools collectively because the general conditions which governed them were so widely dissimilar; but if they dealt with them individually the difficulty to some extent would disappear. If they accepted the report on cubical contents in relation to the accommodation of the schools then they at once got a valuable test with regard to the economy of planning of a school, whilst if they took the test a step further, and compared the ratio of cubical contents below the floor line and above it they had at the same time a method of determination by a comparison of different schools to what extent the excessive cost which might occur in any particular case was due to the circumstances of the site. That was a most important point when they were dealing with counties where level sites were almost unknown. It was a theory which he had worked out lately, and he had a series of diagrams which he would be glad to show those present. The question of flexibility in working a school no doubt was a very material difficulty, but to some extent it could be overcome in the first place by a carefully compiled time-table. As to the size of classrooms in Devonshire, at the present time they were provided for forty and forty-eight, and they found that that provided a considerable amount of flexibility in working the school, particularly at the top and bottom. Whilst on the subject of classrooms he would mention the desirability of using narrow classrooms, both in point of efficiency and for economy's sake. He suggested a standard width of 20 feet. The subject of open-air schools had been before them a good deal lately, and in Wales he believed they were giving a good deal of attention to it, and he had little doubt that in the near future they would have to consider the advisability of removing, or, at any rate, throwing open, the whole side of the classrooms on suitable occasions. There was an interesting suggestion made in the annual report of the school medical officer for Derbyshire in 1912, to the effect that by warming the floor of the room to a certain temperature they might, by removing the windows, produce conditions approximating to the open-air school. The

proposal was certainly a good one, but he thought there might be difficulties in putting it into practice. Another point raised was the position of school sites. He thought they were all prepared to admit that schools, if possible, should be taken from crowded areas. The Departmental Committee went very fully into that subject, and the conclusion they arrived at was that the difficulty of solution increased with its desirability. As to sites in the main, he thought they were prepared to accept the recommendations of the Departmental Committee, but there was one point in their ninth recommendation which was an important one, and was not fully recognised. They said that an enlargement of buildings should not, except in unusual cases, be allowed if it would result in the reduction of the playground below the limits specified in Sections 3 and 4. He took a concrete instance in the case of a school for fifty children. The area of playground per head which they had to provide if the recommendations were given effect to would be 60 feet per child. Although they must be prepared in the case of a new school to say there was nothing unreasonable in the regulations, yet when they came to apply it to a small country school there was a difficulty. He took any area with which they might be acquainted, and asked how many schools there were which could be enlarged, if, after being so enlarged, they could provide this area of 50 or 60 feet per child?

Mr. Pugh Jones (architect of the Glamorganshire County Council) said in the last few years he had been responsible for the erection of four higher elementary schools, and had prepared plans for more. They were for children whose parents could not afford to send them to a secondary school, and they gave scientific and artistic and literary education to the poor children for a small fee. These schools provide ordinary classrooms not to exceed forty. As they knew, sixty was allowed in elementary schools. They had also chemical laboratories and art rooms and lecture rooms. They had diminished the size of these rooms very considerably, and they designed them for thirty-two, forty-eight, and fifty. Personally, he thought that all classrooms should be for one class only. They were spending annually something like £140,000 to £150,000 a year, for theirs was a very populous district. He certainly did not think that outdoor classes would be satisfactory in Glamorganshire, for the chief complaints were with regard to cold rooms, and if people could not be properly warmed in a closed-in room they could not be in the open air. In almost all their new schools they had provided covered playgrounds, and the children could be taught there if necessary. He believed there was an open-air school tried in an adjoining county, which was a complete failure. What they wanted in a classroom was plenty of light and air, and in their recent schools every inch of window was opened. If that was provided for, and they had a very large amount of cross ventilation, it might be said it was equivalent to the open air. In winter they wanted the schools thoroughly warmed, and they provided 18 superficial feet of heating system to every 1,000 cubic feet contents. In the oldest classrooms there were a good many encumbrances about, but in the newer classrooms they put blackboards on the walls and so on. It was the simplest thing out to describe what sort of site one should have, and if they could have their way they could get ideal sites at a low cost, but



RAILWAY ARCHITECTURE.—UNION STATION, BALTIMORE, Md.

that was out of the question. They simply had to take a site where they could get it, and often had to fight to get any kind of site whatever. He had one site where he had to go down a long way, for it was all peat and clay, and was extremely steep. Under such circumstances, it was ridiculous to compare the cost of such a school in Glamorganshire with a school, say, in Middlesex. He had one school which cost them between £9 and £10 per head before they reached the floor level.

Mr. May (Plymouth) said he would like to know if the author could suggest any remedy to get over the difficulty of providing adequate playgrounds for schools in large towns.

Mr. Osborne Smith, F.R.I.B.A., said the Conference was to be congratulated on having the discussion opened by two county architects. He did not agree with the author that they would get elasticity in schools by making smaller classrooms. As they knew, the Board of Education fixed 10 feet super for each child, and no one had said that that was too large. In his opinion, it was very much too small, and this was clearly shown when they came to consider the regulations for secondary schools, which laid down 18 feet super for each child, which was nearly double the amount for elementary schools. Therefore, the most cleanly children were allowed to sit further apart than the less cleanly children, which, from the point of view of health was absolutely a mistake. He thought that if the children in secondary schools had to sit crowded together, as the children in elementary schools did, then they would soon get a larger area allowed. He agreed with Mr. Morris as to the width of classrooms. What they wanted when a number of children or people were gathered together was perfilation. Mr. Pugh Jones had raised the question of the cost of schools. He had been round the schools designed by Mr. Pugh Jones, and was very pleased with what he saw in them. They were mostly on the hillside, and he suggested that Mr. Pugh Jones might adopt a plan he himself had adopted when building on a hill site. When they got a hill site the foundation was a very uncertain thing, and if they put in brick foundation they might sink the whole value of the school below the ground. What he did in building a boys' sanatorium was to make a concrete table on legs, and on the table he built his superstructure. The result was that the foundation cost about one-third of what it would have cost had it been of brick, and it also enabled them to have air all round the building and no dampness. When Mr. Pugh Jones talked of the cost of his schools above the floor line, he would say that these schools were the most luxurious he had ever been in. He had tiled dados and wood blocks and large fireplaces, and so on, and, of course, if they wanted those luxuries they must pay for them. They had also hoppers to the windows and ventilators on the side, so that if the teachers shut the windows there was still ventilation. That accounted for the large expenditure, although he admitted that the money was wisely spent.

Mr. Harbottle Reed said that from about the time of the first White City Exhibition they had heard a good deal about open-air schools, but they did not seem to have got on far. In Geneva they had them, while in Rome the children had portable desks, and took their desks away from the school to do their lessons.

Mr. Jerman, in reply, said he admitted that the paper covered far too much ground, but the whole thing was at present in a chaotic state. With regard to playgrounds,

every school in congested areas should utilise the nearest public grounds. He wondered himself that in Rome they had any school buildings, but Rome was not Exeter or Glamorganshire.

ARCHITECTURE OF LONDON HIGHWAYS.

By VIATOR.

IX.—YE BANKS OF BONNIE LONDON.

THYME does not grow wild where the Banks of London, bonnie London, confront us. And to those who know how to appreciate the poetry and rhythm of our metropolis, the City (and by this we mean for the time being merely the old City) is bonnie. For though to some this adjective is restricted in idea to ruddy-cheeked lasses, yet to our mind this restriction is unjustified when we consider the word in its derivative sense.

London is something "good" to look at, a feast for the eyes, whether physical or psychical or mental. There are so many aspects wherefrom to regard our fair metropolis. We may be attracted by the ceaseless hurry and bustle of its traffic in the busy thoroughfares, by the endless trail of motor-propelled vehicles, surging ahead or turning off to the right or left. We may gaze upon the occupants of those vehicles, people over whose countenances play passions of all kinds and phases. Or we may fix our thoughts upon the innumerable pedestrians threading the thoroughfares and crossing the roadways and bridges, each one bent upon the fulfilment of his or her individual desires or duties, and mostly regardless of the thoughts and passions of the surrounding throng.

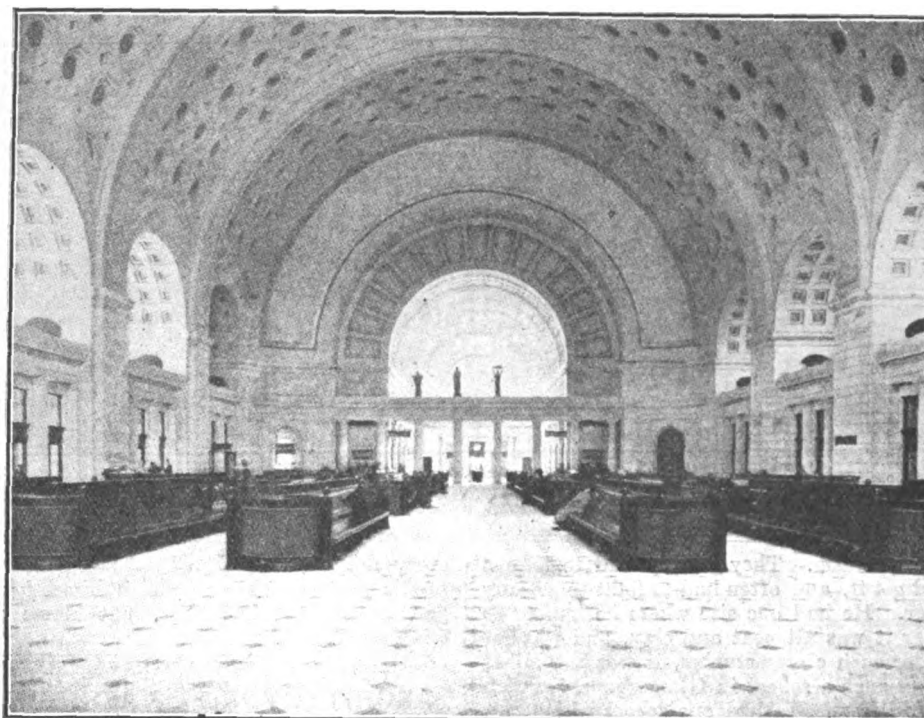
And in the very midst of the roar and bustle we may suddenly turn aside and pass under a narrow archway or into a diminutive court, a quiet square or modest by-way, and straightway the noise and uproar are lost, and only a dull murmur, as of water upon a shallow coast, reaches the ear, soothing the senses and promoting an air of tranquillity at once marvellous in its suddenness and dramatic in its forceful contrast.

And yet, again, we may quit the paved and shut-in roads, and, turning our steps towards the riverside, we may gaze upon the turbid waters of Father Thames, with the unwieldy barges being propelled more or less energetically upon his unquiet stream, and some might wonder why such a thoroughfare should be condemned to such an inconspicuous part in the drama of London action. Not so was it in the centuries that are passed; but we live in days of stress and competition, and it is those who get anywhere "first" who are regarded with favour; hence electric tube, motor waggon, and petrol omnibus must do the work which was formerly so well discharged by our fine river. For it is fine, despite its mud-laden waters and untidy shore, and it is never finer than in the hours of dusk and of "false dawn," or on a misty day, when imagination will come to the aid of reality and a poetic vision will seem to be realised.

In other ways, too—and in many other ways—may we regard fair London City; but here and now we propose to take a somewhat devious tour through a portion of the old City, regarding merely some of the blocks of buildings devoted in whole or part to the purposes of banking, and skirting some of the better-known highways.

As we walk away from King William IV.'s statue,

B



RAILWAY ARCHITECTURE—WAITING ROOM, UNION STATION, WASHINGTON, D.C.

situated at the junction of five important thoroughfares, bending our steps along Gracechurch Street,* a couple of banking houses are presented to view upon our right. There is the Metropolitan Bank, an all-stone façade of five storeys in Renaissance art; it is not such a satisfying elevation as its neighbour (next to be described), but it is a creditable piece of work. As is so often the case, offices surmount the ground floor banking business, and this gives an opportunity for symmetrical disposition of twin entrances, one at either end of the block. The ground storey windows are semi-circular-headed. A pleasant feature in the elevation is the loop of swags, from which shields are pendant. But, alas! for the ethics of design, when we are confronted by blocked-out columns and window-architraves, by broken-based pediments, and by empty niches. But we will conclude with a note of praise for the slight but good ornamentation and the satisfactory overriding balustrade.

The Russian Bank adjoining is, however, a better piece of work architecturally. Here, too, there is not much decorative ornament, which is mainly restricted to the entablature, the tympana, and the entrance. The style is Roman Doric, perhaps more sympathetic for a banking house than any other of the Orders except the Tuscan. The stone façade is both plain and pleasing, but a duplicated entablature is architectonically unsound. This six-storeyed elevation possesses a suitable air of dignity, in no way disturbed by the shallow bow window running centrally from the first to the third floor. The statuary groups at the top of the building provide a good finish.

Making progress along the thoroughfare, a more imposing building is presented to our gaze at the junction of Fenchurch Street; it is the principal establishment of the London and South Western Bank, the work of Messrs. Edmeston & Gabriel, though that genial architect, James Edmeston, has been many years dead. Originally situated in Fenchurch Street, recent extensions have converted the erstwhile moderate banking house into one of considerable proportions. We remarked that the Tuscan and Doric Orders were the most suitable. We may go further, and state that as a general rule (though one that is liable to worthy exceptions) Classic or its Renaissance will prove a more fitting style than Gothic for the class of buildings under consideration. But these Fenchurch Street premises of five storeys in their Renaissance guise prove an uninspiring block; the new corner entrance is sufficiently striking with its sculpture, and has a pleasing lead-covered cupola to crown it. Grey granite is employed for the surbase and for the column and pilaster shafts, and

the basement and ground storeys are rusticated, giving a welcome air of sturdiness. The effigies of past Sovereigns are of interest, but they do not redeem the block.

When we regard the premises of the National Provincial Bank in Bishopsgate Street, we find an excellent building of three storeys in reality, though effectively and architecturally forming but one storey. This block stands out conspicuously from the general run of such premises, and possesses this merit in common with the Bank of England and Parr's Bank, not far distant. Its Corinthian half-columns are throughout their shafts cabled within the flutes. The entablature, with its boldly lettered frieze, is attractive, and the unusual amount of statuary arrests the attention; but, in fact, the whole building does so.

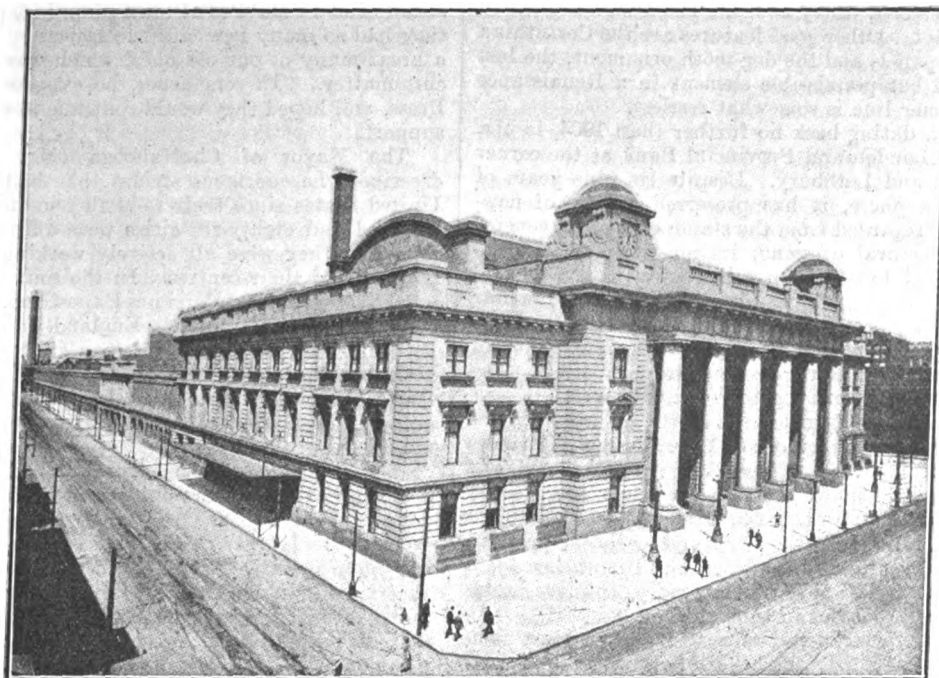
A good old banking house is that belonging to Messrs. Robarts, Lubbock & Co., in Lombard Street; the four-storey building is not a work of inspiration, despite the fact that in its plain Renaissance style it appears what it is. The sub-structure is of rusticated stone, with brick for the upper portion. The quoins are throughout rusticated.

The neglect of the flank elevation is always a source of displeasure to the artist and the architect; and this is more particularly the case where wealth-producing firms are concerned. The bank just noticed sins in this respect, its return elevation to Abchurch Lane dispensing with stone for the ground storey, except to the extent of dressings.

But its neighbour (the London County and Westminster Bank) has not pursued such a mean-spirited policy, for here the front and flank repeat each other. In other ways, too, this five-storey stone block gives evidences of better Art. And yet there is a want of harmony and proportion shown in this example of modern Renaissance. Of course, the latter quality is one that can only be felt—it cannot be taught. The angle of the block next Nicholas Lane is curiously treated—perhaps as the result of ancient lights' requirements—the rectangular ground storey being converted into a heavy cant for the second and third storeys over. The employment of a lower and upper entablature is wrong as a matter of architectural ethics, but when all is said this is not an edifice to be passed unnoticed.

Being in Lombard Street, let us next turn our gaze upon the Gothic façade belonging to the Clydesdale Bank, which, besides possessing the merit of repetitive design of the front for the flank in Clement's Lane, pleases us also by its correct and quiet design. Gothic is so easily made synonymous with fussiness that a restrained design comes with the greater welcome. Generally plain-faced, the red granite columns to the angle entrance and to the windows provide satisfactory variety; the second and third storeys are infamed by pilasters, connected by semicircular arches. There is a quiet cornice over the third storey beneath the acute-gabled dormers.

* Samuel Pepys enters this in his Diary as Gracious Street. This is, we believe, an error of nomenclature, and is due, perhaps, to a misreading of the historian's cypher.



RAILWAY ARCHITECTURE.—CHICAGO AND NORTH-WESTERN RAILWAY STATION, CHICAGO.

Attention, too, may be directed to the grotesque figure-stops to the labels over the ground storey windows.

But whether we like or whether we demur at this or that frontage in Lombard Street, there is throughout the thoroughfare a general air of congruity altogether pleasing. We see here no such bizarre effects as may be observed in highways like Queen Victoria Street, the Strand, Fleet Street, Holborn and elsewhere. Upon all the architects who have devoted their powers of design to the decoration of Lombard Street there would seem to have descended a spiritual sense of fitness of environment, which has had a telling effect. And, *en passant*, it is of interest to note how this thoroughfare, with all its importance, probably disputes with those containing the London Stock Exchange the palm of narrowness against all other equally important thoroughfares in the old City—there is indeed very little to choose between the street of the Lombards, Threadneedle Street (expressive name!) and Throgmorton Street. Mais revenons à nos moutons! The premises occupied by the Hong Kong and Shanghai Banking Corporation and by the English, Scottish and Australian Bank, Ltd., provide an extended frontage devoted to a five-storeyed, quiet and well-proportioned Renaissance stone block, relieved on the ground storey by grey granite pilaster shafts, and on the first floor by slightly blocked-out and vermiculated pilasters. There is one pronounced entablature with modillions and dentil course crowning the building, and a slighter entablature below; beneath the second storey is a windowsill string-course, whilst the ground storey has a slight consoled and keystone cornice. The pilaster treatment is carried throughout, varied in detail from floor to floor.

At the junction of Lombard and Gracechurch Streets are situated the premises of the Crédit Lyonnais—a well-proportioned and pleasing Renaissance stone block with a canted angle, and with the two façades alike. The treatment is sufficiently ornate without excessive decoration, but the top entablature is restless in effect.

A block of four-storey Renaissance buildings in this famous street of Banks, and dating back only eighteen years, is that of Messrs. Barclay & Co., Ltd. The ground storey is decorated with Roman Doric coupled three-quarter columns upon a good subbase, and these columns are surmounted by localised entablatures, bearing triglyphs and pateræ. The façade is mainly stone-faced, but the superstructure has brick filling-in between the stonework.

An unusual but pleasant appearance is accorded by the Commercial Bank of Scotland, fittingly dressed in polished grey granite for three out of its four storeys, plain stonework completing the façades. Grey and red granite attached columns adorn the ground and first storeys respectively. The entire block is surmounted by a balustrade.

The next block to be noticed in Lombard Street is that of Lloyds Bank, Ltd., a four-storey Renaissance structure,

which encloses within its grasp the entrances to Pope's Head and Change Alleys; these have inspired a detail of the architectural treatment, for the alleys are indicated by carved keystones in the archways, with a Pope's head on the one and a simulacrum of the Exchange on the other. The lower portion of the structure is faced with grey granite, and has similar Roman Doric detached columns between the windows, these being replaced on the first storey by Ionic fluted pilasters. The building is well proportioned, and is crowned with a good entablature.

And now quitting Lombard Street, let us wend our way down Birchin Lane, across Cornhill, and continue our route through Finch Lane, where we see the head establishment of the London City and Midland Bank, flanking the Lane, and fronting on to Threadneedle Street. In this four-storey stone block the entrance is on the angle. The pervading air of the structure is one of dignified gravity, most befitting its nature. The building has at different times been subjected to extensions along both façades. The style is Roman Doric, with triglyphs and pateræ introduced in the frieze of the lower entablature. The hackneyed Italian-palace fenestral treatment of alternate straight-sided and segmental pediments appears on the first storey. But an unusual and displeasing feature is the double pediment, doubly broken, over the offices entrance in Threadneedle Street.

The neighbouring block is the Bank of Australasia, a four-storeyed Renaissance design in stone, with the basement treated as a subbase. The projecting panels to the piers of the first storey are an unusual feature, but the carved portion needs enclosing within a well-defined moulded border. There is but one entablature, and that is where it should be—at the top.

Mr. Macvicar Anderson is to be credited with an excellent design in the British Linen Bank in Threadneedle Street. This is a good dignified stone block with scant but pleasing ornamentation. The frontage is an extended one, and the style is Renaissance. The plain pier-caps to the superstructure are ornamented with the fret—an unusual treatment. There is some good modelling in the recumbent figure-group over the offices entrance.

Parr's Bank, in the same thoroughfare, provides a very uncommon façade, though by no means as attractive as the National Provincial premises near by in Bishopsgate Street, and noticed earlier in this article. It is in stone, and consists of basement, ground and mezzanine storeys. The elevation is decorative, with its Classic carved picture panel in middle relief extending over the mezzanine, and, further, with its scroll ornamented frieze and modillioned cornice over.

Another of Parr's banking premises is near by in Bartholomew Lane, more showy, but less pleasing than those just described. And yet they are not to be condemned—far from that. The ornament is well concentrated, and an un-

common feature is the looping together of the frieze-panels at intervals by means of heavy swags. The design repeats in Throgmorton Street. Other good features are the Corinthian piers, the carved panels and the dog-tooth ornament, the last being an unusual but permissible element in a Renaissance design. The dormer line is somewhat restless.

A recent block, dating back no further than 1904, is Mr. A. C. Blomfield's London and Provincial Bank at the corner of Princes Street and Lothbury. Despite its nine years of London City atmosphere, it has preserved an air of newness, and whether regarded from the standpoint of its general façade, its architectural dressing, its massing, or its composition, it is a block to be viewed with respectful and pleased interest. As on other occasions, however, we must demur at the blocked-out Roman Doric columns, at the uneasily posed would-be-recumbent figures on the curved extrados of a broken pediment, and at the broken pediment itself. The seated Minerva statue forms a good crowning piece.

After all these stone façades, it is with an air of relief that we turn our gaze upon a block of Tudor design in Princes Street, and adjoining the premises just described. It was erected in 1891; its shaped and square oriels and shaped gables, its transomed and mullioned windows, and its dulled red brick facings, relieved by the oriels and by shallow piers—all these prove very nice and soothing, and prepare us for a return to the contemplation of stone façades, the last buildings which we shall consider in this article.

Our concluding remarks will refer to those premises occupied by the Union of London and Smith's Bank at the corner of Princes Street and Mansion House Street, and also others occupied by the same Bank and by the Canadian Bank of Commerce at the corner of Lombard Street, next the Mansion House.

Equal in height, both of them Renaissance, with substructure rusticated, and with Corinthian colossal Order to the superstructure, in most respects and in total effect the two blocks are dissimilar in appearance. The Lombard Street premises have the colossal Order embracing three (and not two) storeys; the ornament is practically restricted to the top entablature, the capitals and the entrances, the main entrance being treated with good effect as a recessed portico. The block is known as the Scottish Provident Institution Buildings.

The Princes Street premises, which house also the Equitable Life Assurance Society, are less imposing in appearance than those last described, and instead of the restful balustrade treatment of the latter are subjected to a fussy dormer skyline.

Even after this lengthy article we have but considered a mere fraction of the innumerable Banking premises adorning London City's square mile, to say nothing of the other twenty square miles of the metropolis. A few others of such premises have received attention in previous articles of this series. But pen, ink, and perhaps patience, fail us—doubtless to the satisfaction of those who may have perused so far, conscientiously but yet wearily.

THE LONDON SOCIETY.

A TOUR through the principal cities of Europe has just been completed by several prominent members of the American Civic Association, London being their last stop before leaving for home. During their stay here they visited Hampton Court at the invitation of the London Society, and through the courtesy of the Office of Works, the Galleries were specially opened to the party. The American visitors were afterwards entertained by the Society at the Mitre Hotel. Sir Aston Webb presided at dinner, and after the usual loyal toasts he briefly stated the objects of the London Society, and showed how, under careful guidance, it would become most useful to the local authorities. He complimented the Americans on their activities in civic matters, and said it was largely through their example that the London Society had formed itself.

Following him, the Secretary of the American Civic Association gave an account of their work in the United States and Canada. He thought that most people interested in city planning knew the name of Mr. Daniel Burnham, and that he had laid down a large scheme for the city of Baltimore which the authorities had now commenced to carry out. In New York, too, the Art Commission had established its authority very completely, so that schemes for monuments or buildings of importance had to receive the approval of the Commission. He thought that in England, now that we have the Town Planning Act, such matters were better

managed than in America. They in the States had gone ahead of us in matters of town planning, principally because they had so many new cities to lay out. We had to re-plan a great many of our old ones, which was a much more difficult matter. In conclusion, he expressed gratitude to the Press, and hoped they would continue to receive its unstinted support.

The Mayor of Chattanooga (Mr. T. C. Thompson) described the enormous strides that had been made by the United States since their re-birth some fifty years ago. One hundred and eighty-six cities were affiliated to the Association, and they were all actively working towards the better planning of their centres. In the course of his remarks he touched upon the Panama Exposition, and expressed the hope that if at all possible England would be represented.

Sir Robert Hunter dwelt upon an important item in city planning—namely, the open spaces. He thought the outskirts of London should be closely watched to prevent the accumulation of isolated building sites without any communal existence.

In conclusion, the American Consul-General (Mr. Griffiths) expressed the opinion that England had the most delightful climate and the worst weather of any country he ever knew. He was eloquent also on the desirability of securing the co-operation of women in civic movements, and stated that it was difficult to over-estimate the good influence they had had on such work in America, in spite of some of their delightful inconsistencies. In case anybody had never heard of an artistic American, he reminded the company of the fact that the second President of the Academy (Sir Benjamin West) was an American, and that it was Whistler who discovered the Thames.

ENGRAVINGS AND ETCHINGS OF LONDON AND ELSEWHERE.

IN a collection of prints such as those now on view at the Dudley Galleries, Piccadilly, the interest for Metropolitan visitors may arise from some or all of several causes. The attraction may be architectural, archaeological, historical, or may be due to the artist's name, whether or not the chief of all merits—artistic value—is in evidence. Or, indeed, the craze for this or that style of engraving may be the prime origin of any interest excited. Therefore it is that a collection of prints cannot, must not, be regarded from the narrow basis of artistic value alone, and the present exhibition will thus arouse a large amount of general interest in a discerning public. For *The Architect* readers it will not be unnatural if the chief appeal lies in the display of street architecture of past and present days.

But it is not suggested here that artistic value is negligible in the present case—far from it; and possibly in this respect the work of T. Shotter Boys demands first notice for a series of lithographs, some of them hung on the walls, but all to be seen within the covers of a book published in 1842 ("London as it is"). Mr. Boys had a distinctive style, soft and chalky, but not anæmic. An interval of three-quarters of a century has brought about vast changes, and Boys' work possesses now an historical and a certain archaeological interest in representing London as it was. This review of the dead is emphasised by a closer survey of the exhibits; gone are Temple Bar and the Palace of Industry (both re-erected elsewhere, the latter phoenix-like in its enhanced splendours at Sydenham); gone also is the great building erected in Leicester Fields in order to house Mr. Wyld's great model of the world; the building was designed by H. R. Abraham, a nineteenth-century architect, and its place is now occupied by the gardens in Leicester Square. Gone are the railings enclosing the Temple fountain and Le Sueur's statue of Charles I.—and how much else is gone also!

One of the most interesting exhibits is a panoramic view of London, attributed to Thomas Girtin and J. M. W. Turner, though the evidence to support the latter's co-operation in the drawing is not strong. An engraving by George Vertue shows Torregiano's famous tomb-screen in Henry VII.'s Chapel, Westminster Abbey; a laborious piece of draughtsmanship, but lacking in the best artistic qualities. Much finer is the engraving of the roof in Westminster Hall by Mr. Herbert Hillier.

There are delightful lithographs by the late Thomas R. Way, who revelled in portraying old and vanishing London. Some other artists whose work is displayed are Miss Constance M. Pott (whose engraving of the porch of St. Martin-in-the-Fields Church shows good technique but dubious modelling in parts), Colonel R. Goff, Mr. Francis Dodd, L. M. Powell

(in a series of harmonious and virile water-colour sketches), and Miss Myra K. Hughes; the last-named has a poor drawing of Inigo Jones' house in Lincoln's Inn Fields, but in other respects her exhibited work shows good artistic qualities.

The old coloured engravings do not attract our admiration; one—the Palace of Kensington (1794)—is truly awful in its garishness, and the ladies' dresses look like nothing so much as inverted red and yellow tulips, very full-blown.

Mr. Frank Brangwyn's etchings form an important section of the exhibition, both from their scale and their vigorous technique; in truth, the latter is too vigorous, and the artist seems to be the slave of his tools. Of all here shown the best (and they are very good) are "Barges, Bruges," "Old Houses, St. Cirque," and "Road Sweepers"; "The Bridge of Sighs" has been far more pleasingly and poetically rendered by Mr. Mortimer Menpes. But we must not overlook Mr. Brangwyn's very fine aquatint of "Barnard Castle"—a work with just one spot of high light, where all else is subdued, sombre, and for the most part tenebrous; this work and the earlier-mentioned panoramic view of London are, in their so different styles, the two most effective works in a very interesting collection.

THE LONDON ASSOCIATION OF MASTER DECORATORS AND THEIR EMPLOYEES.

At the fifth annual meeting of the London Association of Master Decorators, which was held on the 7th inst., one of the most important items on the agenda was the consideration of the report of the committee which was appointed to deal with the demands made by the National Amalgamated Society of Operative House and Ship Painters and Decorators for an increase of wages and a code of working rules.

Before discussing the report, the following letter was read from the National Amalgamated Society with reference to their application.

The Secretary read the letter as follows:—

January 7, 1912 (*sic*).

Received January 8, 1913.

John Anderson, Esq.,

President, London Association of

Master Decorators,

4 Clareville Grove, South Kensington.

Dear Sir,—I am instructed by my committee to draw your attention to the proposal of our members to shortly seek for an advance in wages and an agreed code of working rules. In the proposed working rules which we have pleasure in submitting to your Association for their consideration, and, we trust, also their approval, I am asked to refer to one or two parts as requiring some explanation.

PROPOSED INCREASE OF WAGES.

We beg to submit, gentlemen, that the increased cost of living has placed a burden on the workers as a whole, but more particularly on the painter and decorator on account of the seasonal nature of his work, and we feel justified in asking for what we assume may be deemed by our employers to be a substantial advance on our recognised rates of pay.

AN AGREED CODE OF WORKING RULES.

Such agreement, we submit, would be distinctly advantageous to both employer and workman, and would enable both sides to work more harmoniously together in placing ultimately the decorating and painting industry of London on a higher plane.

For the present, however, we desire to place our proposals before you, and trust they will have your careful and sympathetic consideration.—I am, Sir,

Your obedient servant,

JOHN BANCROFT,

London Organiser

Mr. Anderson then read a résumé of what had happened since that date, and then proceeded to say: Our committee were strongly of the opinion that the men should have recognition, as in other trades. Why should the painters stand still and have no increase of pay when that of all the branches of the building trade have gone up? We did not consider it fair and right that they should not have an increase. We also thought that there should be a reasonable code of rules. As you know, a large number of so-called painters cannot paint, and you have to wait until they do something wrong before you find them out. That is what the Association want to nip in the bud. We think this is the proper time to alter it. We are strongly of the opinion that the men should not be granted an increase of wages without rules and conditions. We have informally met the representatives of

the men and discussed it with them, and they are ready to meet us in the main, and I think we are justified in what we propose. You have now before you a copy of the suggested rules and conditions, as well as the suggested increase, and I conclude by saying the committee would like to see some satisfactory solution arrived at with reference to these matters.

The President: I think, following what Mr. Anderson has said, and what he has so ably reported, we ought now to get the Secretary to formally read the proposed rules, which have been formulated by the sub-committee appointed to deal with the matter.

The Secretary read the suggested rules.

The President: I think the meeting now thoroughly understands the rules that have been read, and the position as explained by Mr. Anderson, and that the time has now come for the members present to give us their views. I accordingly put the matter before you for discussion.

Mr. Cabuche: My view of the matter is this: Firstly, are we to use our efforts to alter and improve the present state of affairs with the workmen? Secondly, having made up our minds what to do, are we strong enough to enforce our views on the trade generally? And, thirdly, are we satisfied that the men themselves are in a position to bring everybody into line so far as they are concerned? Now, I do not think that anyone can doubt that this Association was formed with the object of improving the decorative trade generally, and to uphold it as representing both masters and men. We have to consider whether we are sufficiently strong as an Association to bring into line all outside people. No one will doubt that the men's position should be improved to some extent. But we have to consider whether we are to give them rules. We have to agree to-night as to granting an increase of wages. I think we should do so. If so, how are we to protect ourselves? There is only one way to do it, and that is to have some form of rules that will protect us against the inferior men. This Association is very desirous of improving the trade, rather than let it go along in its present haphazard way. I should like to hear further discussion before any proposition is made on the subject.

Mr. Milton: I think that to give the men an increase without any restrictions at all would be useless. We should get no better men than before.

Mr. Campbell, sen.: Perhaps it is within the knowledge of the Association that this is not a new idea. It was taken up two years ago to adopt some means to get the best work for our money. I agree with my friend Mr. Milton that if we can offer an increase and get a good class of men we should be quite wise to do so. And I contend that we ought to see that we get good painters for what we pay, and it would be to the men's advantage to qualify for it. If we do something on these lines I think it would help both masters and men. I have threshed out these rules, and I have taken a great deal of interest in the subject, and I don't think you can do better than adopt the rules proposed.

Mr. Hillen: We are anxious that the employers and the men should work together and increase their strength. Don't you think we might help them to do that in this way—that all fully qualified men should in some way be affiliated to the London Master Decorators' Association; that they should be able to show that they are employed by our members; and that they are up to the required standard of work? I think we should then get a good class of men. We want each man presenting his ticket as a member of a union to be a fully qualified man. It would keep out the inferior class of men. I should not quarrel with the suggestion to give an increase. I think we should then be able to claim that no man should come in simply because he pays his subscription to his union. There should be something to show that the man has been employed by some member of our Association.

Mr. Anderson: This is the primary condition: that no man should receive an increase of pay unless he can show that he has given satisfaction to some firm or firms for at least three years.

Mr. Hillen: That ought to be insisted upon.

Mr. Anderson: If we have the true interests of the trade at heart we must not mind the trouble for the purpose of arriving at satisfactory arrangements.

Mr. Norman (Messrs. Hampton's) agreed with the previous speakers, and complimented the Association on having the courage of its convictions, and had no doubt the trade would support the Association in its scheme.

A discussion now took place on matters arising out of the subject under consideration, which was entered into by most of the members present.

The President: I should now like, as the discussion has

gone on long enough, to say a few words before putting the resolution. I am pleased to note that the Association upholds the committee in what they have done, and leave the rates of pay in London and outlying districts to be adjusted according to local requirements, although the hours should be universal for London and the district. What we have to do is to adopt the resolution which has been brought forward by the committee to deal with the matter. It seems to me that we should adopt the rules and proceed without delay to make arrangements with the men's representatives. It is clear that the general opinion is in favour of an advance subject to conditions.

The President then proceeded to put before the meeting certain suggestions as to the course of procedure, which were fully considered, whereupon

Mr. Hillen moved that the "proposed working rules and the increase of pay as formulated by the committee be adopted by the Association, and that they be recommended for adoption by the trade."

Mr. Cabuche: That a definite date be fixed.

The President: I will put the resolution in the following form: "That the proposed conditions and working rules and the proposed increase of wages as formulated by the sub-committee be adopted by this Association, and, further, that the said working rules and increase of pay be recommended for adoption by the trade as from the first Saturday in October next."

Mr. Salisbury seconded the resolution, which was carried unanimously.

The following proposition was then put by the President and agreed to unanimously: "That the Secretary be instructed to send the men's Society a copy of the above resolution, together with a copy of the suggested working rules, and that the London Master Builders' Association be written to with the intimation that a copy of the suggested rules has been sent to the men's Society."

ENGLAND'S ACRES: THE STORY OF LAND OWNERSHIP.*

By JOHN GEORGE HEAD (Fellow).

(Continued from last week.)

WILLIAM I. treated all who opposed him as rebels, confiscating their lands, which he distributed among his own followers. He divided England into 60,000 knights' fees or parcels of land containing twelve plowlands—or from 600 to 1,000 acres. The owner of a knight's fee was bound to furnish military aid and other services which might minister to the necessities or to the pleasures of the King. Many and varied were the services which were rendered to the King in return for the broad acres of shire and county, manor and homestead. In addition to the furnishing of men and horses for war, all things that the King could need were the subject of grand or petit serjeantry, as these services were called—from the victualling of the Royal companies to the provision of benches for the county courts; from the supply of dogs for the chase, to holding the King's head when he sailed across the Channel. Strange to our ears and trivial to our ideas of value appear some of the things by virtue of which many a fair land was secured to its possessor. We read that Peter Picot held one-half of Hegdon, Essex, by the serjeanty of serving with a towel at the coronation of the King, and that his brother held the other half by serving with the basin; that Robert Agyllon held one carucate (that is, as much land as could be ploughed in a year) by the service of making one mess in an earthen pot in the kitchen of our Lord the King on the day of his coronation, the mess being called "diligroun"; that the Manor of Brienstone, in the county of Cheshire, is held of the King by the service of finding a man in the army of our Lord the King, going into Scotland barefoot, clothed with a waistcoat or shirt, and breeches, or drawers, or trousers, having in one hand a bow without a string and in the other an arrow unfeathered. Other services of serjeanty were keeping the larder of the King; being the King's baker; providing a pair of scarlet hose; furnishing a gallon of honey; weighing the King's money at the Exchequer; repairing the bridge of Fleet; finding a house for a prison; supplying bailiffs; finding a pound for cattle; finding and keeping dogs for hunting; hunting the wolf, fox, and cat, and driving away all vermin out of the forest; providing one man to lead three grey-

hounds when the King should go into Flanders so long as a pair of shoes of fourpence price should last; keeping a brach (female hound) till it were fit to run; by the service of mewing one goshawk; by the service of lifting up their right hands towards the King yearly on Christmas Day; by the provision of one boat and nets; by shoeing the King's horses, and by many other services of the most varied and bizarre description, of which an amusing and interesting account may be read in Blount's "Fragmenta Antiquitatis."

In these days we should not hesitate to covenant as did Geoffrey Bosville, of Peniston, York, to provide a snowball at midsummer and a red rose at Christmas, or to become joint holder with the farmer, Walter le Brun, who held a piece of land in St. Clement's, near the Strand, at the rent of six horse-shoes per annum. In these days, when the value of land is reckoned by the foot square, it is strange to read that this rental is still actually paid with all due ceremony.

Many of these services may seem to us to be purely nominal, if not fanciful, but they often meant a contribution of serious importance to the King, particularly where they took the shape of military aid or the provision of supplies. Even the apparently trivial services had a meaning far more important than their intrinsic worth; they were a symbol that the land was held by authority and subject to the overlordship of the Sovereign. Slender as the service might be, it was by no means unimportant, for its performance gave supreme control within the limits of the estate, while its neglect implied forfeiture. By it the holder was secured in his occupation of the land, but it also furnished a means of identification and control which would otherwise have tended to disappear. Above all, the nominal service formed a bond with the Crown, under which in the course of time there grew up a system of money contribution of the most serious nature, to which reference will be made later.

As has been mentioned, the lord of the manor in his turn disposed of portions of his land to other persons upon condition of their rendering to him services similar to those which were due from him to his Sovereign. He allotted land to sub-vassals, whose names were inscribed in the court roll of the manor. In Scotland this right of sub-infeudation is still practised in the granting of feus, but in England the privilege was abolished by the statute of *Quia emptores* in the reign of Edward I., which permitted the sale or alienation of lands, but required that the purchaser should hold direct from and be responsible to the Crown.

The economic conditions were, however, changing, and money payments began gradually to displace personal service. The King found it highly inconvenient that the foreign military service of his vassal nobles was limited to forty days in any one year, and it suited his purpose better to take their money, and hire mercenaries who would fight as long as he paid them. He therefore commuted their services for a money payment, called scutage or shield money, an arrangement which was agreeable also to the nobles, in that it released them from engaging in wars in which they felt no interest. Similarly with the services rendered by the villeins to their lords. By the time of Richard I. many of these were commuted for payments of money or for contributions in kind in the shape of fixed quantities of straw or honey, or fixed numbers of eggs or fowls. These arrangements possessed the advantage to the villeins of securing to them freedom to move about the country, which they could not do while they were obliged to give personal service.

After the fearful plague of the Black Death in 1318, by whose ravages more than half of the labourers were swept away, prices of labour rose to such a point that the money fines for which the personal services had been commuted were quite inadequate to hire labour to till the land. The lords then sought, by the help of Parliament, to compel the villeins to work at the prices current before the Black Death. On the failure of these measures they attempted to set aside the money commutation and to re-establish the services of personal labour. This effort also was unsuccessful—indeed it largely contributed to produce the disturbances which culminated in the peasant revolt headed by Wat Tyler. The lords of the manor, finding that they could not profitably cultivate their demesnes by means of labour paid for by the commutation moneys, abandoned the system of services which had been in vogue since the Conquest, and let out their lands to others who paid rent for it. Much of the land now became enclosed as pasture land for the rearing of sheep in connection with the woollen industry, which was then thriving, and even for the land which remained the

* A Paper read at the Oxford meeting of the Surveyors' Institution.

services of villeinage fell into disuse, on account of the difficulty of enforcing them. So passed away the state of villeinage, and with it the last vestige of slavery in England. Feudalism was decaying fast, and met its death blow during the Wars of the Roses.

The substitution of a pecuniary assessment for personal military service had robbed it at the same time of its nobility and of its usefulness. Once it had provided a national militia in which baron, knight, and gentleman were united by a common tie of fealty and mutual interest to defend their King and country; now it sufficed only to pay the occasional services of an army of mercenaries; its significance had passed away, and nothing remained but a series of hardships and inconvenient ceremonies. When a landed proprietor held his lands from the Crown a large sum had to be paid to the King upon his death and again upon the heir coming into the property. He could not dispose of an acre without a licence, for which he had to pay heavily. If the heir were an infant the King became his guardian, and was entitled to a great part of the rents during the minority. Knighthood was compulsory and was attended with great expense; marriage was not only made the occasion for a handsome tribute, but the King could require the ward, under a heavy penalty, to marry any person of suitable rank nominated by the Crown. To quote the words of Macaulay: "The chief bait which attracted many a needy sycophant to the Court was the hope of obtaining as a reward of servility and flattery a Royal letter to an heiress. These abuses had perished with the monarchy. That they should not revive with it was the wish of every landed gentleman in the kingdom. They were therefore solemnly abolished by statute on the restoration of Charles II., and no relic of the ancient tenures in chivalry was suffered to remain except those honorary services which are still at a coronation rendered to the person of a Sovereign by some lords of manors."

Feudal tenure, therefore, is dead; lands are no longer to be held upon payment of a rose or a mess of pottage, nor even of military service. Though one might be willing to risk the attendant disadvantages, the romantic tenure of chivalry is gone for ever—not one estate held on such terms can we find within the bounds of our land, not even if we be assisted by the sleuthhounds of the Government Valuation Department. The romance is gone; the pomp of personal military service attached to the knight's fee is now represented by the prosaic offering of King's taxes, a payment which, while dispensing with the glamour of the old manorial contributions, preserves at least one of their features in that, although the demand is uncertain in its amount, it never fails to arrive in due course.

Only in the case of copyholds have we any relic of the old feudal services of villeinage, and even in these cases the heriot is the only one which is still paid in kind. This quaintly named tribute means that the best beast on the estate becomes payable upon the happening of certain events, such as the death of the lord, the birth of an heir, the coming of the stranger—occasions of need and importance which remind us of similar times of crisis long ago, when the lord was wont to call upon his vassals for tribute and assistance. But all other services, such as the "week work" and "boon work" of villein and cottar, have been commuted for money payments.

For a long time prior to the abolition of feudal services a triple struggle had been going on between the Parliament, representing the nobles, the judges on the part of the people, and the Court of Chancery, for the Church, all striving to acquire and maintain territorial rights for the parties in which they were respectively interested. Mortmain Acts were passed to prevent the excessive accumulation of land in ecclesiastical hands, a procedure of which the importance will be seen in view of Stow's assertion that practically one-half of the land of England was in the possession of the monasteries before their suppression. Entails were established to retain lands in the same families, and eventually the present system of settlements came into force as a means of retaining the advantage of entails and getting rid of as many as possible of their defects. The beginning of the eighteenth century witnessed the eve of a change in the occupation of land, a change so great that it has been called the Agrarian Revolution. Strange as it may seem, it is none the less true that in the main the system of agriculture at the time of Queen Anne was the same as that prevailing twelve hundred years before, and which is known as the open-field system. Originally the arable portion of the manor was divided into three enormous fields, in one of

which wheat was grown, in another barley, while the third was fallow. These were divided into long narrow strips, usually about one acre in extent, and a number of these strips not adjacent to one another, but scattered about the estate, were allotted to each of the respective farmers. The ploughing and other farming operations were carried out in common, and the expense shared, while the cattle were allowed to wander over pasture and arable land alike, there being no hedges, and one man's land being separated from his neighbours only by balks of unploughed land.

With the birth of the eighteenth century, however, agriculture received a great stimulus. Improved methods were brought in, and were successfully conducted by those who were able to command separate holdings, but they were almost impossible to the small farmer under the combined system, in view of the obvious difficulty of securing the agreement of so many different persons to alterations which amounted to a revolution of the entire system of farming. Demands arose for enclosure and for the consolidation of the scattered strips, and thousands of private Acts for this purpose were obtained as being necessary to the new system. The expense and difficulty of so doing tended to squeeze out the small farmer or yeoman freeholder, and the process was also hastened by the extinction of village handicrafts through the introduction of machinery. Originally every village was a self-supporting institution, and in farmhouse and cottage the distaff spinning-wheel and handloom supplied the necessities of its inhabitants, and added to the scanty profit derived from farming operations. With the advent of machinery these handicrafts passed away, and as the meagre system of agriculture then in vogue was insufficient to support the population, those engaged therein left the field for the factory, and population shifted to the northern industrial centres. A further contributory cause was the extensive acquisition of land by new families who had risen to affluence upon the wave of industrial expansion, and who desired to secure the importance which attached to territorial possession. The land hunger culminated in the boom which prevailed during the Napoleonic wars, and during the subsequent slump those who had outstayed the market were obliged to sell at disastrous prices. At the beginning of the eighteenth century there were estimated to be some 200,000 yeoman farmers; at the opening of the nineteenth century the class was practically extinct. The farm had passed from a self-sufficing industry to a bread and beef factory; those who tilled the soil retained no personal interest therein: they were no longer producers for their own benefit, but had become consumers only and labourers for hire.

Looking backwards, then, through the vista of history, we see at the furthest limit of vision the tribal community, with its common land, its open fields in which the strips were allotted to successive occupiers. We see it developing into the manorial system during the Roman occupation in the parts most thoroughly dominated by them, but still persisting in its original form in the hinterland, and even to-day directly represented by the Rundale system in Ireland and leaving its traces in Welsh tenures also. Next we see the manorial system in full force under the Saxons in the sixth century; we see the manor constituting a complete unit of industrial life governed by a thane or earl, with a population of freemen and serfs, every one with his allotted number of acre strips scattered over the manor, a right of pasturage over the whole after harvest, in return for which the vassal was bound to fight for his lord and till his land. We see it modified by feudalism at the Norman Conquest, the manorial holdings becoming more and more free, until the extinction of serfdom in the fourteenth century. We see the ancient forms of agriculture persisting until the Georgian era, which gave us improved methods of farming and the beautiful hedges which adorn our countryside. The tendency of forms to survive, after the disappearance of the circumstances which gave rise to them, has preserved to us in a remarkable manner records of the actual arrangement of some of these manors.

Dr. Frederic Seebohm in his most valuable book entitled "The English Village Community" gives a detailed plan, dated 1816, of the Manor of Hitchin, which, being a Royal manor, escaped the flood of the Enclosure Acts, and preserved, till a very recent date, an arrangement of fields, which, from a comparison with ancient documents of pre-Norman times, may fairly be held to be typical of a Saxon manor.

As late as the early part of last century a large portion of the manor was divided up into little narrow strips about one acre in extent, being four rods in width and one fur-

long in length. This special form obviously originated from the measurements most readily available. The rod is said by some to have been the length of the wand held in the ploughman's hand to reach the foremost of the team of oxen, and by others to represent the length of the yoke borne by the four oxen abreast. The furlong or furrow long was the length of the furrow most convenient before turning the plough, and was equal to forty rods. The strip measuring a furlong in length by a width equal the length of the rod was called a rood; four of these rood strips made up an acre, and were as much as one plough could do in a day. The acre strip, then, was the unit adopted for the division of the land for the purpose of securing equality as to position and soil. The strips allotted to each villein were scattered over the estate, a normal virgate or yardland, the holding of the villein, consisting of a messuage and thirty scattered acre strips. The meaning of this curious and, to our thinking, highly inconvenient arrangement of the fields is to be found in the fact that the plough and the plough team of oxen were the joint property of the villeins in partnership for the purpose of co-ploughing. We learn that "the first 'erw' (acre) ploughed was to go to the ploughman, the second to the irons, the third to the outside sod ox, the fourth to the outside sward ox, the fifth to the driver, the sixth, seventh, eighth, ninth, tenth, and eleventh to the other six oxen in order of worth, and, lastly, the twelfth was the plough erw or plough-bote, i.e. for the maintenance of the woodwork of the plough; and so, it is stated, 'the tie of twelve erw's was completed.'"

When, therefore, a sufficient number of strips had been ploughed to provide each member with one, the next acre fell to the lot of the first man, and so the succession began again. In this manner there arose these bundles of scattered acre strips, which were transmitted undivided from father to son.

As we have seen, the villein received the land from his lord, who also provided in many cases the oxen also, the price being the services rendered to the lord. To secure a continuity of these services, the elder son assumed his father's place upon the death of the latter, and with the duties took up the ownership of the land. A similar process took place between the lords of the manor and their sovereign lords, resulting eventually in the law of primogeniture, which thus presents a relic of feudal vassalage.

Among other survivals of manorial customs we have what are known as Lammas lands, or lands which are commonable after Lammas Day. We have relics of the yet more ancient tribal community in the lot meadows of Yarndon, Chingford, and elsewhere. These meadows are still held in strips, and are most interesting examples of interchangeable lands, occupied in successive years by different holders. Most ancient of all we have the curious terraces seen on the hillsides throughout the country; terraces which have caused many conjectures as to their origin, but which are now held to have been made in times far distant by those who, finding the valleys unsafe or impassable, dwelt upon the hill-tops and ploughed the steep slopes in terraces as the only practicable method of cultivation.

Finally we have the village greens and commons, with their rights of pasturage, of turbary, of housebote which remain to tell us of the earliest recorded land tenure, one which existed before the cornfields of Anglia met the eye of Cæsar, and, by exciting the lust of conquest, brought down upon these islands the irresistible legions of Rome.

(To be continued.)

DUBLIN MUNICIPAL ART GALLERY.

AFTER all the controversy that has been aroused in connection with the site for the Dublin Municipal Art Gallery it may be sad to think that the pictures have been rejected, not because of the question of site, but because of the question of the architect.

The report of the Special Committee appointed to consider the question of a site for the Dublin Municipal Art Gallery was discussed on Friday, the 22nd inst., at a special meeting of the Municipal Council. The Lord Mayor presided.

The report stated:

The committee had had an interview with Sir Hugh Lane on August 1, in the course of which he intimated to the committee that if the Council adopted the Mansion House site for a Gallery instead of the Bridge site he would only give to

that Gallery his Barbizon and English pictures and the sculptures, but not his Impressionist pictures—but that, in that event, he would insist on Mr. Lutyens being the architect, on account of the importance of the lighting question. On the other hand, if the Council would decide to build the Gallery on the Bridge site, Sir Hugh Lane stated that he would guarantee to pay any sum that the Gallery might cost over £45,000, provided it is constructed under his supervision and to his approval; that his bankers would give the necessary guarantee on his behalf, and that he would give all his "conditional gift," as enumerated in his letter to the Lord Mayor, under date November 5, 1912, and such subsequent purchases as might be made by him for the purpose of presentation to the Gallery. On the suggestion of the Right Hon. the Lord Mayor, it was decided that the Mansion House Art Gallery Committee ought to guarantee the difference between £22,000 and £45,000, and Councillor Miss Harrison undertook to report this suggestion to that committee. If the Corporation agree to build the Gallery on the Bridge site, a bond or agreement must be entered into, preserving the right of the Corporation to get back the "conditional gift" when the Gallery is completed. To this Sir Hugh Lane has agreed. Reports were obtained from the city architect and borough surveyor. The committee then, having carefully considered the question, beg to recommend the Council to approve of the Bridge site, and the designs as already submitted, provided Sir Hugh Lane guarantees the Corporation against all expenditure over £45,000, and that the Mansion House Committee give solvent guarantees to meet all expenditure between £22,000 and £45,000.

The report met with considerable criticism. The following amendment was carried by 24 votes to 22, but when it was put as a substantive motion it was lost by 23 votes to 20:—

That as no condition was mentioned or implied as to the employment of a particular architect for the proposed Art Gallery in the preface to the catalogue of pictures exhibited in the Municipal Art Gallery, which is edited by Sir Hugh Lane, and having regard to the fact that such appointments have at all times been unreservedly in the gift of this Council, the Corporation desires to inform Sir Hugh Lane that any other course is contrary to sentiment, precedent, and integrity, and the Council cannot agree to abandon this privilege.

The Lord Mayor of Dublin, in an interview published in the *Irish Times*, thus explains the position:—

"The Corporation," he stated, "pledged itself to an expenditure of £22,000, and even agreed to the Bridge site. At the last meeting it did not go back on either of these undertakings; nay, it rejected a motion asking Sir Hugh Lane to allow the Corporation to select a site itself. The Corporation, however, never did agree that Sir Hugh Lane should select the architect, and on Friday last it carried an amendment stating that that was a corporate privilege, and that the Council intended to adhere to it. This was, however, beaten when put as a substantive motion, but only because some of the members went away before a final division was taken." It was clear, according to his lordship, that the Council wanted Irish architects to get an opportunity of competing, and as Sir Hugh Lane definitely stated to the committee that he must have Mr. Lutyens as architect it could be formally assumed that the pictures were lost to Dublin. "I make no observation," continued the Lord Mayor, "upon the merits of the proposition about the architect. I made my views very clear at the Council meeting, but the newspapers did not think it worth while to publish them. Once the Council of which I am chairman has given its formal decision I am not going to reflect on its decision."

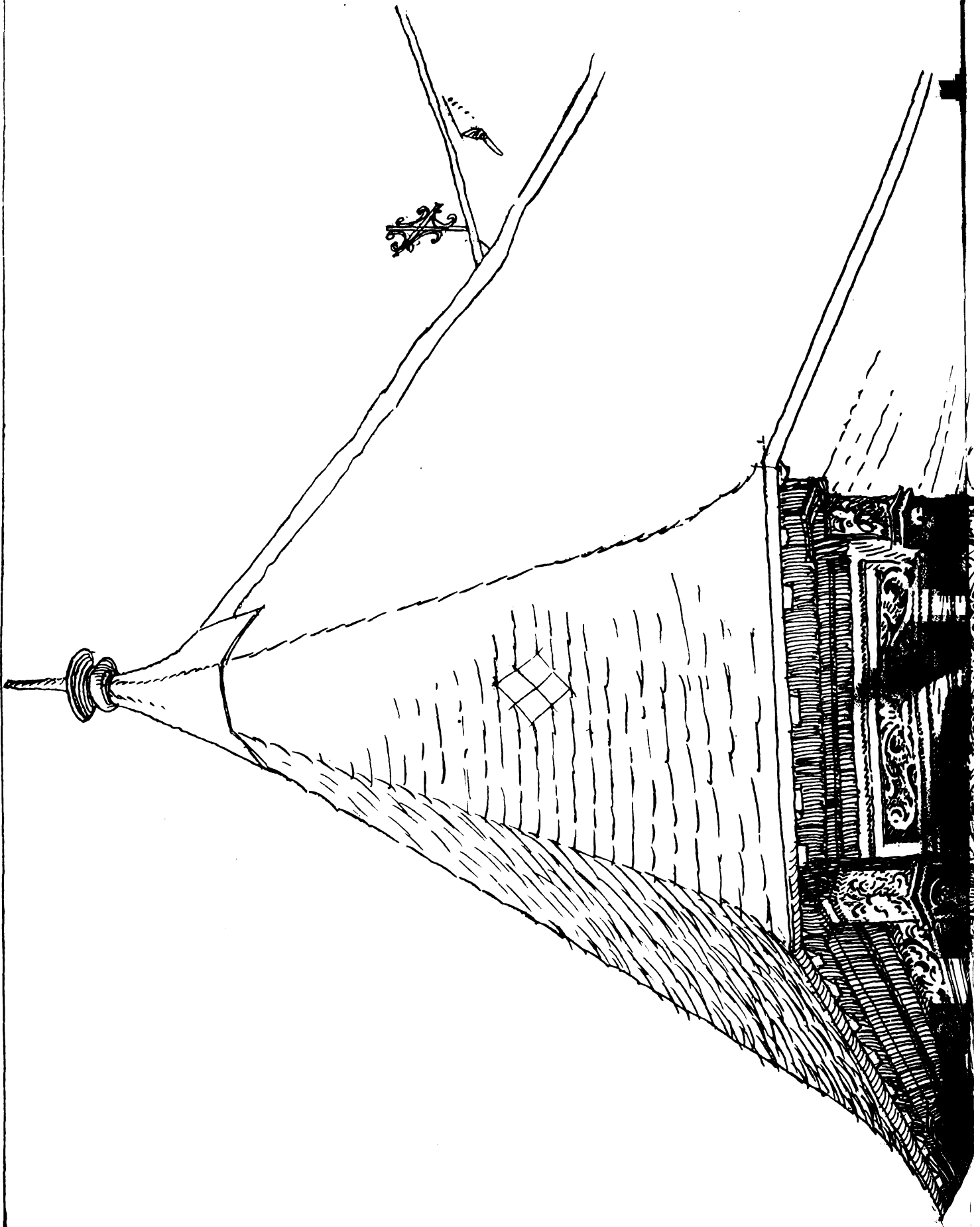
THE BUILDING OF CHEAP COTTAGES.

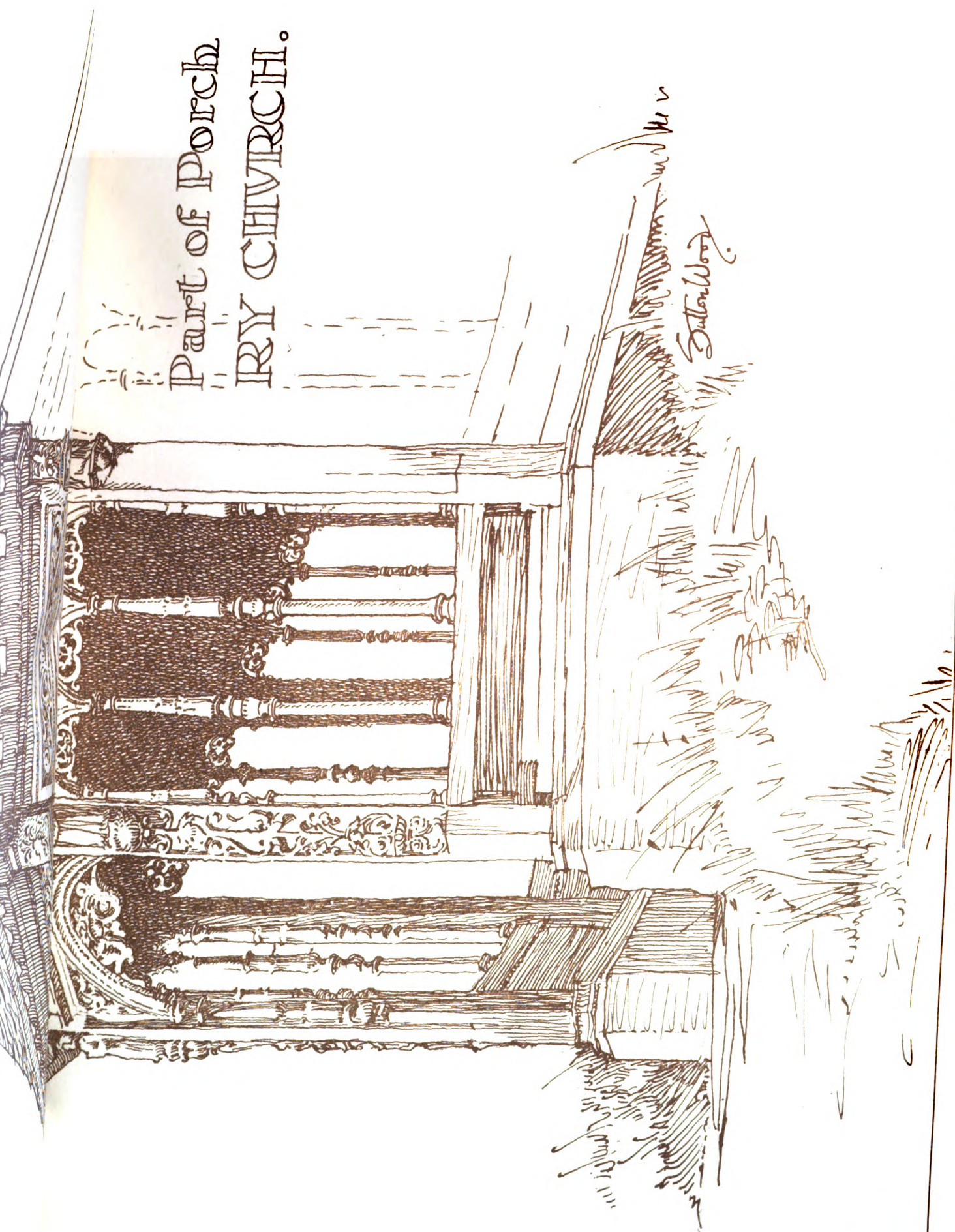
MR. F. R. HARDING NEWMAN, J.P., a member of the Departmental Committee appointed by the President of the Board of Agriculture, in a letter for publication, says his experience during the widespread inquiries he and his committee made makes him sceptical regarding alleged cheap cottages. On the many tours the committee took to all parts of England, wherever they found very cheap houses, those, for example, built at £150 each in pairs, or £200 single, they found that either the builder had become bankrupt or would not repeat at the price, or that many extras, which should have been included, were omitted. For example, they found no charge had been made for sand and gravel worth five shillings per ton on the spot in some cheap concrete cottages. Others were so small that neither the Local Government

implied in the
the proposed
pictures shown
ted by Sir H.
ach are shown
gift of the
H. are that
present, and
to attend this

The Corporation of the High Lane should be an amalgamation of the two divisions was made, that the community of interest it could have to Dublin, "upon the news-tem. Once their formal

the Department of the Board's experience committee cottages. parts of case, for le, they r would should found th five cottages. nment



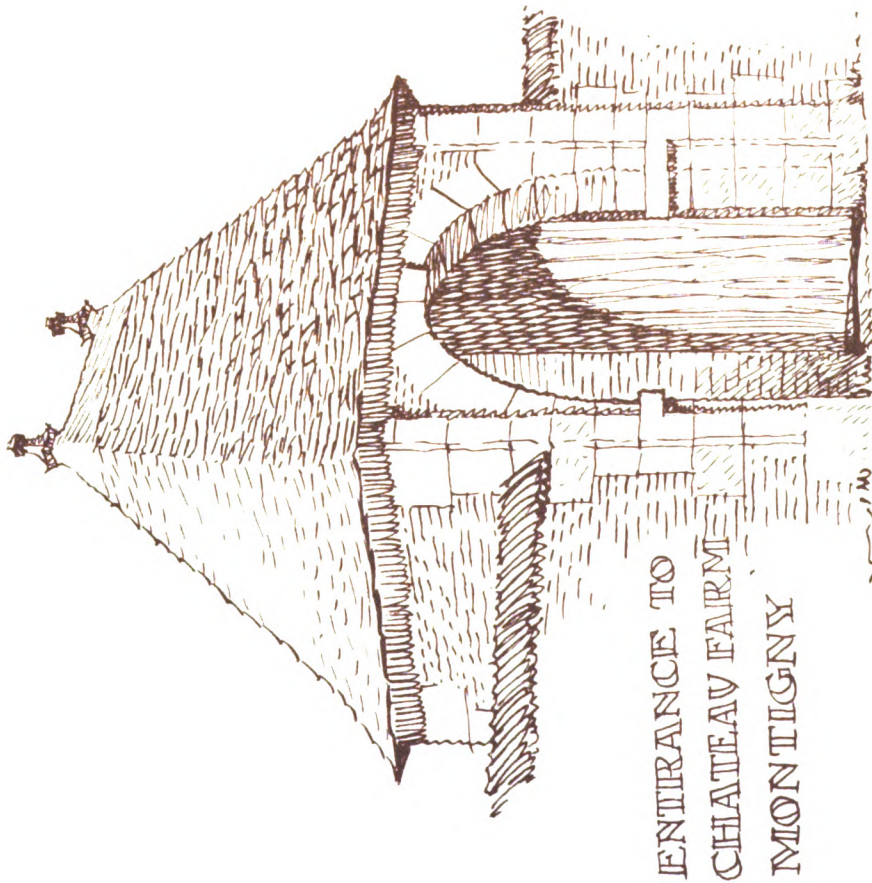


Part of Porch
PRIORY CHURCH.

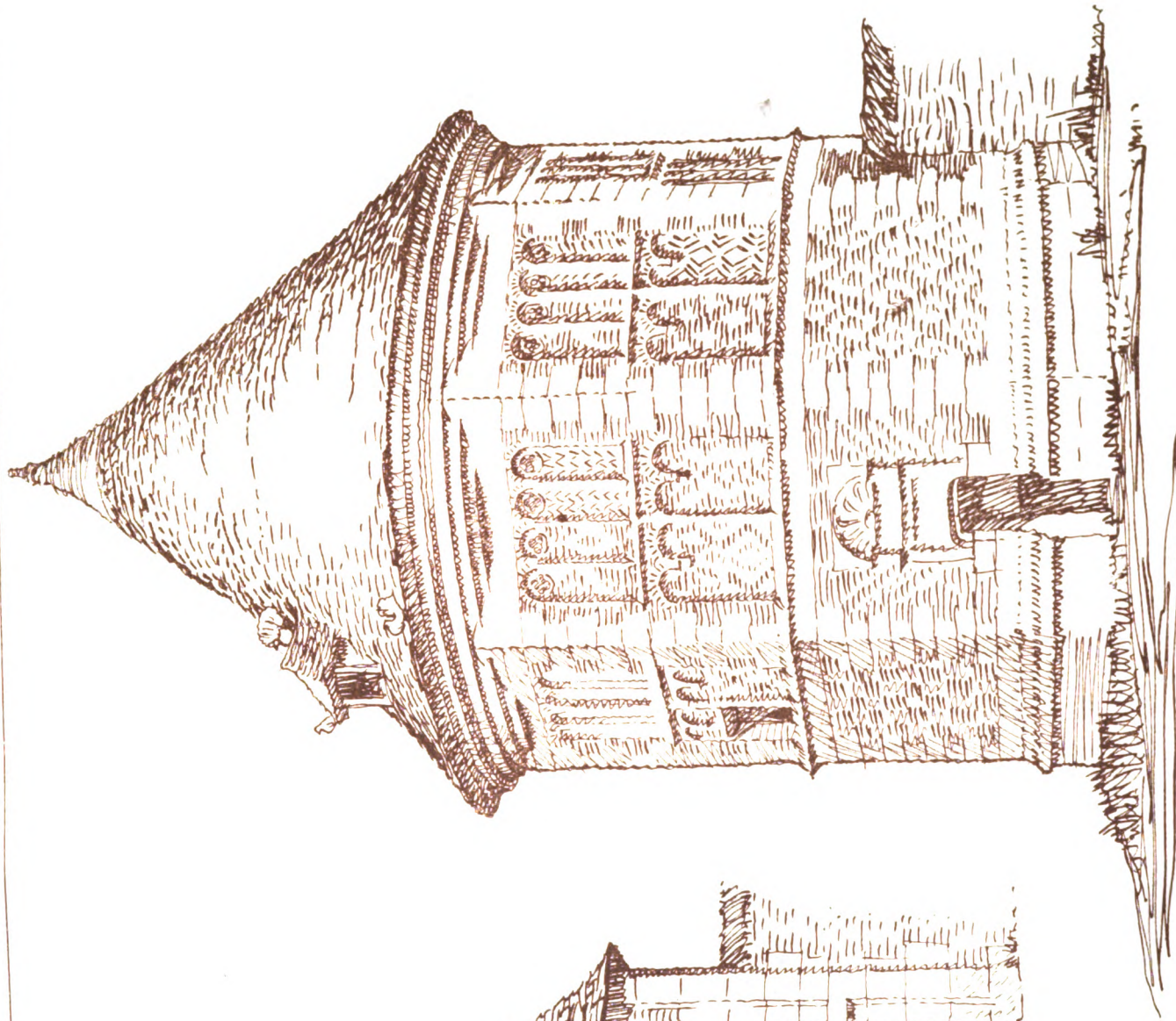
Sutton Wood

SKETCHES MADE ON THE ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.
BY MR. L. SUTTON WOOD.

PHOTO-LITHO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, LONDON W.



ENTRANCE TO
CHATEAU FARM
MONTIGNY



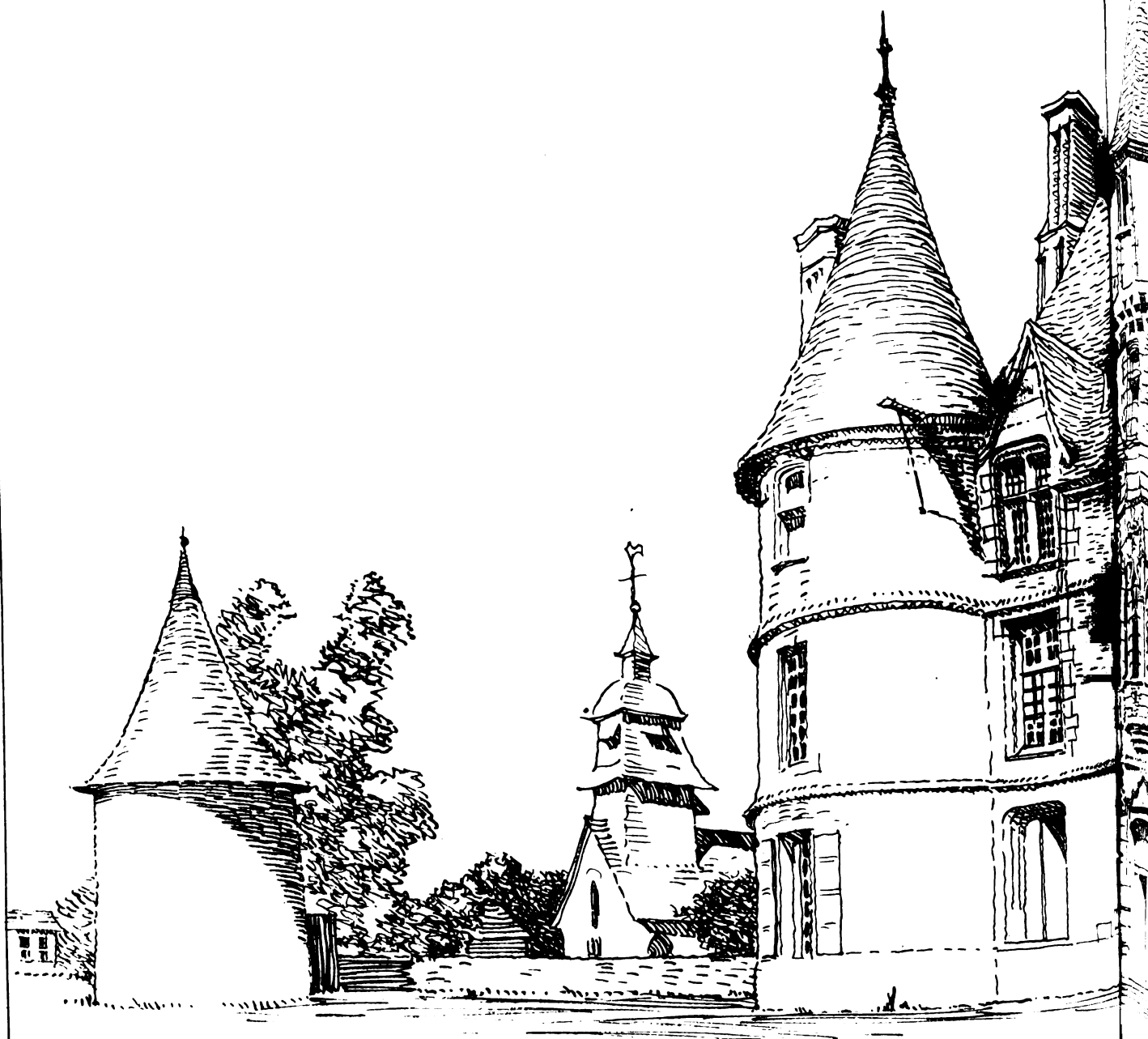
PIGEONNIER: BOOS.

SKETCHES MADE ON THE ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.
BY MR. J. SUTTON WOOD

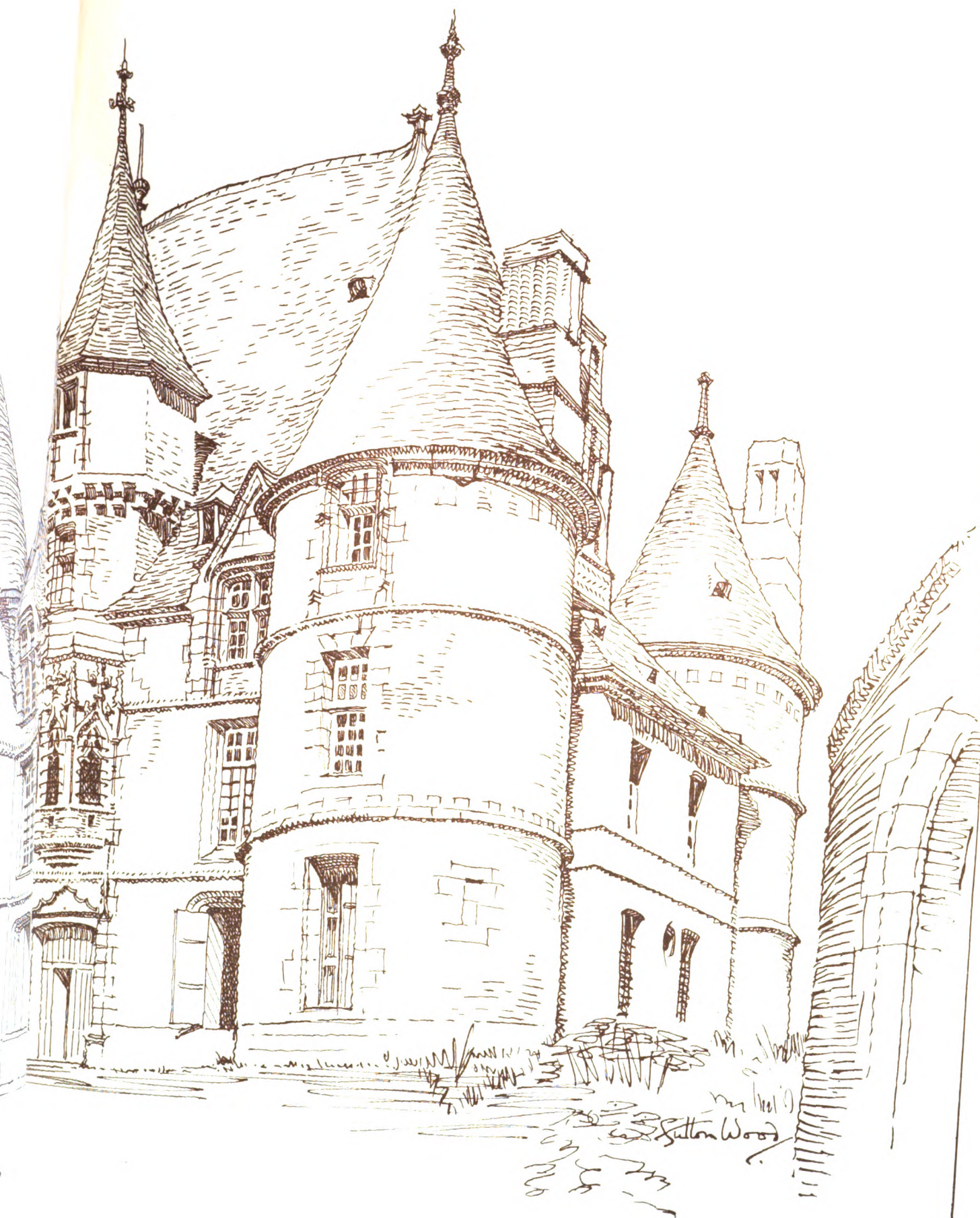
PHOTO-LITHO. SPRAGUE & CO. 47, 69 & 70, DEAN STREET, SOHO, W.



LONGPAON CHURCH
SOUTHWEST CORNER



CHATEAU DE MARTAINVILLE.



A
3-ate
When
tato
tile
o co
st pe
head
Th
offic
he B
ultit
ote 1
onse
plans
in the
ntia
are
He be
made
conce
in red
not p
grat

P
S
Ver
Be
Su
Ga
res
pro
P
Co
ca
Le
an
Gr
Au
Te
ap
92
Au
E
la
10
ne
Re
11
9
or

ve
F
T
S
D
F
P
N
i
l
I
Y

Board nor the Board of Agriculture would have passed them. Where cheapness was mentioned the cubic content should be stated to enable one to judge whether the claim was acceptable. He recently saw plans of some nice cottages estimated to cost about £320 per pair. He found the cost averaged 5*d.* per cubic foot. Therefore they were not particularly cheap.

The Committee's report suggested a minimum size cottage, of about ten thousand cubic feet. He understood the Board of Agriculture had practically adopted his committee's report as to the future standard, and it was therefore useless for public authorities, having obtained the consent of the Board to their building schemes, to submit plans for approval not conforming in essentials to the findings in the committee's report. He considered the cottages should be healthy and presentable, as the appearance of a residence undoubtedly influenced the occupants. He believed that concrete in the hands of experts might be made a success, but the employment of such experts to build concrete cottages in country villages would too materially increase the cost. He urged the necessity for longer loans for public bodies or private persons willing to tackle this great and pressing problem.

PATENT SPECIFICATIONS PUBLISHED AUGUST 21, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 17,208. July 24, 1912.—W. J. Llewellyn and A. J. Bevan, builders, 595 Stratford Road, Sparkhill, Birmingham. Safety device for use in connection with watertight taps, cisterns, connections, and the like.

17,482. July 27, 1912.—Siegmund Sborowitz, 16 Fichtestr., Berlin. Process of making artificial stone and the product produced thereby.

18,524. Aug. 12, 1912.—L. F. Tooth, Commercial Gas Co., Harford Street, Stepney, E. Valves especially applicable for gas fires.

18,588. Aug. 13, 1912.—R. R. Carey, 41 Leyton Avenue, Leigh-on-Sea. Hydraulic apparatus, such as lifts, hoists, and cranes.

18,781. Aug. 16, 1912.—J. W. Tunstall, 16 Colwyn Grove, Bolton, and R. N. Brown, 34 Waldeck Street, Bolton. Automatic window fastener.

19,190. Aug. 22, 1912.—Allan Stevenson, 5 Chancelot Terrace, Ferry Road, Edinburgh. Heating and storage apparatus for hot-water supply.

21,166. Sept. 17, 1912.—H. S. Hele-Shaw, F.R.S., 92 Coleherne Court, S.W. Apparatus for disinfecting and flushing water closets.

21,170. Sept. 17, 1912.—E. H. Birch, 25 Bartle Avenue, East Ham, Essex. Permanent fire escape for hotels, factories, warehouses, theatres, and the like.

21,995. Sept. 27, 1912.—Geo. Wood, Flaggar & Slater, 10 Oozehead Lane, Blackburn. Cowl for the tops of chimneys.

22,704. Oct. 5, 1912.—C. M. Toplis, Walton, Frome Road, Combe Down, Bath. Cranes.

28,554. Dec. 11, 1912.—Jesse Ward, 97, and A. H. Meir, 119 Biddulph Road, Tunstall, and W. A. A. Quinton, 9 Bridge Street, Brindley Ford, near Tunstall. Machines or apparatus for gauging or measuring tiles.

29,342. Dec. 20, 1912.—Dated under International Convention Dec. 23, 1911. Akos Radich, Hofburg, Budapest. Flushing apparatus for water closets.

29,729. Dec. 24, 1912.—J. R. Carter, 227 Jarvis Street, Toronto. Device for heating the sides of baths.

29,877. Dec. 28, 1912.—J. McIntyre Shaw, 14 Union Street, Glasgow. Boilers for kitchen ranges.

4,445. Feb. 21, 1913.—Christopher Dobson, 73 Central Drive, Blackpool, and Richard Iddon, 20 Albert Street, Fleetwood. Obtaining a supply of heated air from fire-places.

4,658. Feb. 24, 1913.—B. M. Rolland, 22 Boulevard National, Parc Street, Maur, Seine, France. Device for increasing the heating efficiency of stoves, radiators, and like heating apparatus.

5,254. March 1, 1913.—Richard Wild, 59 Fifth Street, La Rochelle, Johannesburg. Handle for spades and the like.

5,796. March 8, 1913.—Dated under International Convention March 9, 1912. C. G. Gulbrand, Holmenkollen, near Christiania. System of construction for cast walls.

6,241. March 13, 1913.—Geo. Bailey, 13 Halford Road, Leyton, Essex. Boilers for kitchen ranges.

6,938. March 20, 1913.—W. F. Drew, 25 West Forty-second Street, Manhattan, New York. Flushing tanks for closets.

13,035. March 5, 1913.—Thos. Briggs, Prospect Hill, Sunnyhurst, Darwen. Chimney pots or revolving cowls.

Any of the above specifications may be obtained from J. D. Roots & Co.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Chalfont St. Giles.—Houses, Rickmansworth Road. Messrs. Wood & Muir, R.I.B.A., architects, Gerrards Cross.

Chalfont St. Peter.—Additions and alterations to cottages. Messrs. Forbes & Tate, architects, 16 Old Square, Lincoln's Inn, London.

House, Roughwood. Messrs. Swannell & Sly (of Amersham), architects.

Great Missenden.—Premises for Mr. Grover: additions and alterations.

High Wycombe.—Grammar School (£17,000). Mr. A. Vernon, architect, 41 High Street.

Penn.—House for Mr. A. Perfect.

Prestwood.—Houses for Mr. T. A. Moller.

Slough.—Isolation Hospital: extension (£1,000).

CHESHIRE.

Cuddington.—Bacon factory.

CORNWALL.

Redruth.—Workhouse: infirmary.

CUMBERLAND.

Aspatria.—Workmen's dwellings, Outgang Road. Mr. G. Armstrong, architect, 24 Bank Street, Carlisle.

DEVON.

Exeter.—Council School, Paris Street: alterations. Mr. J. Jerman, F.R.I.B.A., architect, 1 Bedford Circus.

Withleigh.—Vicarage (£1,500).

DURHAM.

Chester-le-Street.—Drill Hall for C Co. 8th Batt. Durham Light Infantry and local Cyclist detachment.

Sunderland.—Picture Theatre, Hylton Road. Messrs. W. & T. R. Milburn, F.R.I.B.A., architects, 20 Fawcett Street.

Willington.—P.M. Sunday School for 400 places (£1,000). Presbyterian Church.

ESSEX.

Chelmsford.—Public Elementary Schools for 400 places in Bradford Street and for 500 places in Rainsford Road.

Hornchurch.—Working-class cottages (£3,900).

HAMPSHIRE.

Petersfield.—Isolation Hospital: extension (£2,700).

Shipton Bellinger.—Two workmen's cottages, for the County Council (£500).

KENT.

Dover.—Premises, Buckland, for the Nat. Prov. Bank of England (£8,500).

LEICESTERSHIRE.

Ashby-de-la-Zouch.—R.C. Church, Station Road (£25,000). Mr. F. A. Walters, A.R.I.B.A., architect, 37 Old Queen Street, Westminster, London. Messrs. Willcock & Co., contractors, Darlington Street, Wolverhampton.

LINCOLNSHIRE.

Grantham.—Post Office, St. Peter's Hill.

Metheringham.—Buildings at Tanvats: additions, alterations, &c. Mr. J. Clare, County architect, 51 London Road, Sleaford.

NORFOLK.

Hockwold-cum-Wilton.—Council School. Mr. J. E. Burton, architect, Victoria Buildings, Bank Plain, Norwich.

NORTHUMBERLAND.

Forest Hall.—P.M. Chapel and Schoolroom (£1,000).

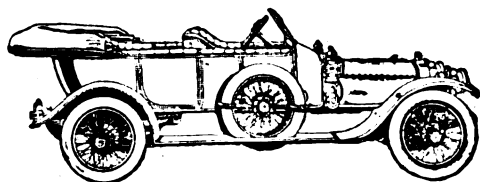
SURREY.

Richmond-on-Thames.—House. Mr. H. A. Pelly, F.R.I.B.A., architect, 144 Leadenhall Street, London.

MARVELLOUS RECORDS

BY
THE **INVINCIBLE TALBOT** CAR

At Brooklands, on August Bank Holiday, the 25 h.p. Invincible Talbot set up a new British Record—travelling at the rate of 120 miles per hour, or two miles a minute. This is the fastest speed yet attained at Brooklands in Handicap competitions.

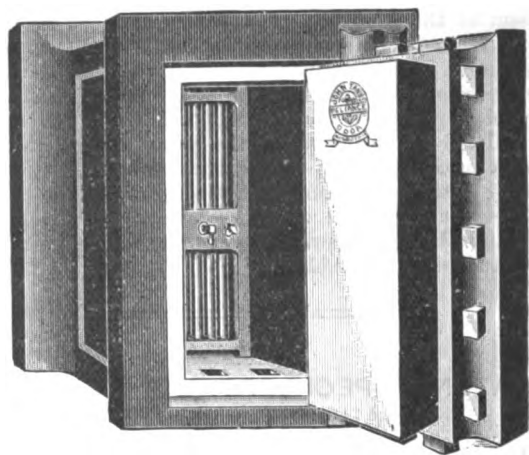


Catalogue on request.

CLEMENT TALBOT, Ltd.,
Automobile Designers and Engineers,
Barlby Road, Ladbroke Grove, London, W.

ESTABLISHED 1795
FOR SECURITY AND VALUE
ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS
THE GREATEST SECURITY
FOR ANY GIVEN EXPENDITURE, BACKED UP BY
THE HIGHEST RECORD—
118 Years without a single failure against
either FIRE or BURGLARS.

Catalogues and Estimates from **JOHN TANN, Ltd.**
117 NEWGATE ST., LONDON.

PEN-YR-ORSEDD

SLATE QUARRY CO., Ltd.,
Supply Best and Seconds Red and Purple

SLATES

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

TO MERCHANTS AND THE TRADE.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "

F.O.B. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Cate.

ENGLAND—continued.

SUSSEX.

- Burpham*.—C. of E. School.
Littlehampton.—Council School.
Portslade.—St. Andrew's Schools: additions (£4,200).
 Mr. E. H. L. Barker, architect, 10 Pembroke Mansions.
 Mr. Gerram (of Plaistow), contractor.

WARWICKSHIRE.

- Birmingham*.—Council School, Deykin Avenue and Boulton Road: extension.
 Council School, Albert Road, Aston: alteration.
 Council School, Burlington Street: alteration and enlargement.

WORCESTERSHIRE.

- Broadway*.—Council School.
Malvern.—Council School for 350 places.
Worcester.—Five blocks of Garden-city houses. Mr. Rowe, architect, 30 Foregate Street.

YORKSHIRE.

- Barnoldswick*.—Weaving Shed, Crow Nest, for 2,000 looms.
 Mr. W. H. Atkinson, architect, Shaw Cross, Colne.
Bolton-on-Deane.—Public Baths.
 (And *Goldthorpe*).—Three hundred municipal dwellings.
Hoyland Common.—Girls' Council School: alterations (£850). Messrs. Roper & Sons, Ltd., contractors, Bruce Works, Mowbray Street, Sheffield.
Huddersfield.—Open-air school, for 100 places.
Keighley.—Baptist Sunday School, Albert Street. Mr. A. T. Harrison, architect, High Close.
Sheffield.—"Sheffield Telegraph" Buildings, High Street. Messrs. Gibbs, Flöckton & Teather, R.I.B.A., architects, 15 St. James' Row.
Thrybergh.—Public Elementary School.

WALES.

- Corwen*.—Children's Homes, for the Board of Guardians.
Fochriw.—Congregational Church and Schools. Messrs. Thomas & Morgan, architects, Church Street Chambers, Pontypridd.
Llanfihangel-Glyn-Myfyr.—Council School, for the Anglesea Education Committee.
Margam.—Carnegie Public Library.
Menai Bridge.—Village Institution.
Port Talbot.—Forward Movement Hall, at the Sandfields, Aberavon. Mr. F. B. Smith, architect, St. Oswald's Chambers.
Wrexham.—Workmen's houses, for the Welsh Housing Association.
Ystradowen.—Council School (£3,500). Messrs. D. Rees & Sons (of Ystalyfera), contractors.

SCOTLAND.

- Barrhead*.—Workshop, Victorian Pottery, for Messrs. Shanks & Co., Ltd.
Brechin.—Infirmary: additions and alterations (£1,000). Mr. D. W. Galloway, architect, 2 Market Street.
Callander.—M'Laren High School: gymnasium.
Comrie.—West U.F. Church: beadle's house.
Crieff.—Morrison's Academy: swimming bath.
Dumfries.—Twenty-four working-men's houses.
Dundee.—Chapel, Magdalen Yard Road, for Right Rev. R. Fraser.
 Property, Strathmartine Road: additions and alterations, for the U.F. Church Managers.
 Property, Strathmartine Road: additions and alterations for Mr. J. M'Kean.
 Property, Raglan Street: additions for Messrs. A. & R. Lickley.
 Property, Scott Street and Glenagnes Road: additions and alterations for Messrs. M'Gregor & Co.
Dunfermline.—Carnegie Institute, Nethertown (£7,000 to £8,000). Mr. J. Lindsay, A.R.I.B.A., architect, 248 West George Street, Glasgow.
Edinburgh.—Business premises, 26 and 28A Frederick Street, for the Professional and Civil Service Supply Association.
 Five villas, Lockhart Crescent, for Craiglockhart Building Co.
Galashiels.—Public Library: improvements (£3,000).
Glasgow.—Ten self-contained houses, Brunswick Avenue and Park Drive North, Partick, for the Scotstoun Estate Building Co.
 Two tenements of houses, Exeter Drive and Newlands, Partick. Messrs. Gray & Co., builders, 101 St. Vincent Street.

- Offices, South Street, Whiteinch: additions for Messrs. Barclay, Curle & Co., Ltd.
 School and janitor's house, Calder Street, for the School Board.
 Machine shop and offices, 195 Broomloan Road, Govan, for Messrs. Dobbie, M'Innes, Ltd.
 Shops and warehouses, High Street, for the Corporation.
 Switch and transformer houses, Partick Station, Mauldrie Street, for the Corporation Electricity Department.
 Tenements in Love Lane and Cathedral and John Streets: alterations for Thomas Kay's Trustees.
 Water Tower, Hyde Park and Whitehall Streets, for Messrs. Bilsland Brothers.
 Workshops, Dundas and Kinning Streets: extension for Messrs. Watson, Laidlaw & Co., Ltd.
Greenock.—Eight cottages, Denholm Street, for Mr. D. L. Carmichael.
Kilbirnie.—Central School, Newhouse (£8,000).
Kirkcaldy.—Hospital: additions and alterations.
Markinch.—Smithy and motor garage, for Mr. J. Birrell.
Montrose.—Clubhouse, for South Links Golf Club.
Scotstoun.—Works, South Street: additions for the Albion Motor Car Co., Ltd.
Stirling.—Municipal buildings.

IRELAND.

- Bantry*.—Munster and Leinster Bank: addition. Mr. S. H. Hynes, F.R.I.B.A., architect, 5 South Mall, Cork.
 Mr. S. Hill, contractor, Asylum Place, Cork.
Belfast.—Thirty-six labourers' double cottages, for the R.D.C.
Dublin.—"Messenger" Offices: extension. Mr. C. B. Powell, architect, Upper Rathmines.
 Picture Gallery on the Liffey (£22,000).
 No. 16 Andrew's Street: rebuilding. Mr. T. J. Cullen, M.R.I.A.I., architect, 25 Suffolk Street.
Kilkeel.—Premises for Provincial Bank of Ireland.
 Messrs. Watt, Tulloch & Fitzsimons, F.F.R.I.B.A., architects, 11 Wellington Place, Belfast.
Nenagh.—Thirty houses. Mr. R. P. Gill, Council surveyor.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Architecture of Railway Stations.

SIR.—I have been most interested each week in your article on "The Architecture of Railway Stations," and should like to voice my appreciation. I started travelling twenty-seven years ago. What a difference since that time—beautiful roomy stations and platforms, well lighted (generally), also railway carriages. The worst station, from my mind, in London at the present time is London Bridge (L.B. and S.C. Railway), with its dim religious light (?); and here, too, sometimes, the old railway lamp is to be seen. Even the suburban station has been improved, but—and, unfortunately, with all these improvements there is a but—I certainly hope the writer of the articles will deal with the sanitary arrangements, not, perhaps, at the London termini, but at district stations and junctions. Possibly the London and South-Western Railway is one of the most unsatisfactory in this respect; but all the lines, more or less, could very well consider the improvement of this part of their arrangements. Travelling now is a pleasure and a luxury, thanks to the enterprise of our railway administrators.—Yours truly,

A COMMERCIAL TRAVELLER.

August 18, 1913.

H.M. TRADE COMMISSIONER reports that, according to the local Press, the Board of Governors of Canterbury College, New Zealand, have approved of a scheme for the extension of the college buildings at a cost of £20,746. The name and address of the architect may be obtained on application to the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

Callender's Dampcourses

have gained

First Place in Specifications

by reason of

Standard Quality,

and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.

GUARANTEED FREE FROM COAL-TAR OR PITCH.

NO SQUEEZING.

NO CRACKING.

NO EXPENSE IN LAYING.

From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

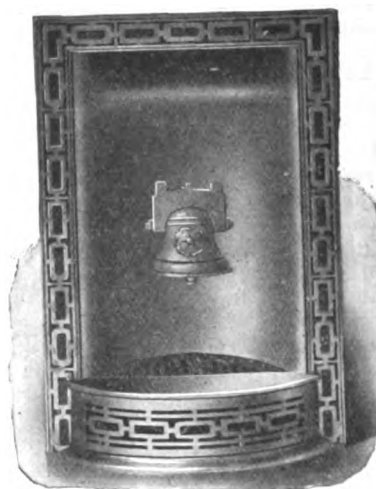
25 Victoria St., Westminster, S.W.

GOLD MEDAL

"BELL" GRATES

are in use all the world over, and giving the greatest satisfaction everywhere.

Illustrated Catalogue on application.



**Bell Range
& Foundry
Co.,**

16 Berners
Street,
London, W.,
and
Northampton.

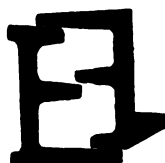
REA METAL CASEMENTS

LTD.,

KNOWSLEY WORKS, STANLEY, LIVERPOOL

MANUFACTURERS OF

**METAL CASEMENTS
& SASHES of every
description,
LEADED GLAZING &
STAINED GLASS.**



HALF FULL SIZE.

Telephone,
365 Old Swan.
Telegrams,
"Enlighten, L'pool."

CONTRACTORS TO
H.M. GOVERNMENT.



Ben Henry Johnson & Sons

MODELLERS and PLASTERERS

ARTISTIC FIBROUS PLASTER WORKERS

SPECIALISTS IN FRENCH STUC WORK

Mouldings in Wood, Compo & Enriched Plaster

A FEW RECENT IMPORTANT CONTRACTS:

NEW ADELPHI HOTEL, Liverpool

(First and Second Contracts)

NEW LIVER CHIEF OFFICES - - - Liverpool

WHITELEY'S NEW PREMISES - Westbourne Grove

CARLTON HOTEL (after Fire)

VICKERS HOUSE - - - Broadway, London

69 VICTORIA STREET, LONDON, S.W.

And Primrose Hill, Fontenoy St., LIVERPOOL.

Wires:

"JONSONIPLA. LONDON."
"HENJONIN, LIVERPOOL."

STUDIOS AND WORKSHOPS:
PARKHILL RD., HAMPSTEAD

'Phones:
5419 VICTORIA.
626 & 627 CENTRAL, LIVERPOOL.
(ADELPHI) ROYAL 4434.

The Architect.

CONTENTS.

	PAGE
Architectural Association Excursion	205
Convalescent Home, Bushey Heath (illustrated)	206
Notes and Comments	206
Competition News	208
Illustrations :—	
Royal College of Surgeons, London	208
A. A. Normandy Excursion Sketches	208
“The Architect” Students’ Sketching and Measuring Club.	209
Architecture of Railway Stations	209
Abbey Church of Plainpied, Cher (illustrated)	211
England’s Acres : The Story of Land Ownership	212
The Trades Training Schools (illustrated)	215
A Country House at Baarn, Holland (illustrations)	218-21
House of Commons Ventilation	219
The Society of Engineers	221
Geometrical Sketch of St. Sophia	223
Notes on Books	223

Building Progress in the Provinces	PAGE 223
British Patent Specifications	227
Correspondence	227

FORTHCOMING EVENTS.

Saturday, September 6.

Architectural Association Camera, Sketch, and Debate Club :
Visit to Ashburnham House, Westminster, S.W. Members
to meet at 2.30 P.M.
Northern Architectural Association : Students’ Sketching Club
Meeting.

Monday, September 8.

Sanitary Inspectors’ Association : Annual Conference at
Llandudno (six days).

Wednesday, September 10.

British Association : Annual Meeting opens at Birmingham.
Incorporated Sanitary Association of Scotland : Annual Congress
(three days).

Saturday, September 13.

Upper Norwood Athenæum : Visits to Oxted and Limpsfield.

THE ARCHITECTURAL ASSOCIATION EXCURSION.—III.

FRIDAY, AUGUST 15.

THE official programme for this day, which provided for a visit to Dieppe and the Manoir d’Ango, was subject to a complete subversal by reason of the demand made by the lady owner of the Manoir d’Ango for a fee of 2 francs for each photographer and 5 francs for each sketcher. Accordingly, the intended trip to Dieppe was abandoned, and an excursion made to Les Andelys, when, for the first time during the week, the excursionists started in rainy weather, which continued more or less throughout the morning, though not to such an extent as to be seriously inconvenient. The journey from Rouen to Les Andelys being rather a long one, halts were made on the way. The first of these was at La Neuville-Champ-d’Oisel, a village which has somewhat of a local reputation for its picturesque cottages, but architecturally does not contain much of interest beyond a house with a quaint turret near the high road and the interior of the church, which possesses some excellent thirteenth-century capitals *à crochet* to the piers of the nave. The next halt was made at Pont Saint Pierre, where a distant view only was obtained of the château, a picturesque fifteenth-century house approached by a fine avenue of ancient trees. The château is still surrounded by a moat, and presents a picturesque front towards the avenue. It is said that there is a fine staircase in the interior, but this, of course, was not available to the party.

Proceeding through the valley of the Andelle, and leaving unvisited the eighteenth-century château and the famous ruins of the twelfth-century fortress at Radepont, the excursionists at length arrived at Les Andelys, and drove first through Petit-Andely, noting on the way the hospital of Saint-Jacques, founded in 1784, to Grand-Andely, where, preceding lunch, they strolled about in a damp atmosphere, and visited the church of Notre Dame, a very fine *monument historique*, restored in 1860, which contains work of various periods, principally thirteenth, fifteenth, and seventeenth centuries, and containing some good Renaissance glass. Also near the church is the chapel of Saint Clothilde, a thirteenth-century building, largely reconstructed in 1635. The celebrated well of Saint Clothilde was not troubled by the excursionists, whose object of pilgrimage was of rather different character to the cult of the Saint. Luncheon was taken at the celebrated Hôtel du Grand Cerf, the wonderful sixteenth-century hostelry with carved wood front, but now, unfortunately, losing much of its former attractiveness by the

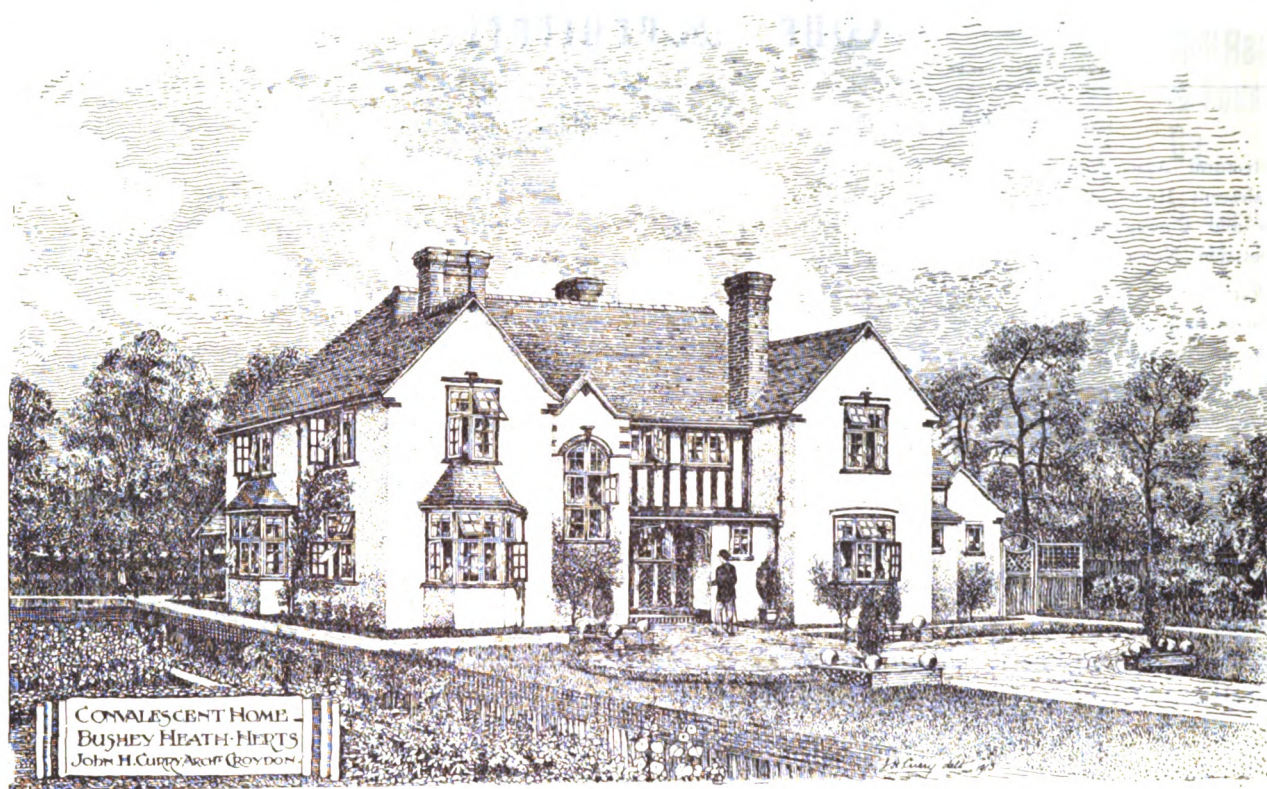
removal of the remarkable collection of curiosities and antiquities collected by M. Leroy, which formerly adorned the grand salon and other rooms of the house. There still remain, however, the monumental fireplace, with its fittings, and the carved oak *tambour*, as well as the staircase.

Leaving Grand-Andely, the party proceeded to the remains of the famous fortress of King Richard Cœur de Lion, the Château Gaillard. The height on which the château stands was climbed, and the glorious views therefrom enjoyed, whilst careful study was also made of the remains of the castle, the various parts being fully investigated with the aid of plans, a remarkable interest in military architecture of the thirteenth century being displayed, by reason, probably, of the unfavourable nature of the day for sketching. Descending from the château, the remainder of the afternoon was spent in Petit-Andely, which contains a considerable number of old houses, one with a façade of the time of Louis XIII. The church of Saint Sauveur is an interesting example of the end of the twelfth century, whose plan, fully developed towards the east, has a remarkably short nave of only two bays.

On the way back from Les Andelys short halts were made, as during the morning. The first of these was at Ecouis, which possesses a very fine church with twin western towers, founded by Enguerrand de Marigny (1311-13). This church contains some excellent examples of carved oak stalls of fourteenth-century date, as well as sixteenth-century panelling and later altar pieces, but the feature which attracted most attention from the excursionists was the red brick pointed barrel vault, whose date was ascertained to be 1730. On the outskirts of Ecouis a brief halt was made to view a small monument erected in 1872, commemorating a fight on October 14, 1870, between twelve French hussars and a hundred German cavalry. The next halt was made at the château of Grainville, the property of the Comte de Barry, a picturesque building, whose chief features are the abnormally high chimneys in red brick and white stone, and the good iron gates. Close by is a small church or chapel of Norman date.

SATURDAY, AUGUST 16.

The programme provided for the visiting of some interesting interiors of buildings in Rouen under the guidance of M. Delabarre, the architect for the Hôtel de la Poste, in which the excursionists had been residing during the week, but the number of the party was slightly diminished by the departure of some members for home, others for Paris. The first building visited under the guidance of M. Delabarre was the hotel built for the Pre-



sident of the Parliament of Normandy, opposite the Hôtel de Justice, from the designs of T. T. Martinet, in 1717, now devoted to the accommodation of various local learned societies, including the Society of Architects. The building contains some interesting examples of cornice treatment, stone staircases with iron balusters, and wall panelling.

Next a visit was paid to the Palais de Justice, where the interior of the salle de justice, with its elaborate if somewhat unpleasant ceiling, is the most remarkable feature. This is still used as a court of justice, and the arrangements were explained by M. Delabarre. After this, a visit was paid to a remarkable piece of François Premier work—the house built for the accountant of the town of Rouen in 1520. This is now visible in a courtyard entered from No. 14 Rue des Carmes, and formerly opened into the arcade which runs from this street to the Rue des Quatre Vents. The detail is remarkable for the treatment of the pilasters, with their candelabra-like ornament over the caps.

The next visit paid was to the old Archbishop's Palace, principally of seventeenth-century date, but with eighteenth-century work added by Cardinal d'Estuteville and Edmundus Fredericus Fuzet in the eighteenth century. Inspection was also made of the Romanesque basement with a secret stone door leading to a subterranean passage said to have been constructed to enable the Archbishop to escape in the event of popular riot, probably in the eighteenth century. There are also to be seen in this basement a thirteenth-century arcade and an ancient well.

From the Archbishop's Palace the party proceeded to the Palais de Commerce, halting on the way to view an old open staircase to a house in the Rue Ampere. The Palais de Commerce was built by Louis XV. in 1735, as recorded by the following inscription: "Ludovicus XV. ad urbis ornamentum ad commercii decus ad regni totius utilitatem erexit Anno Domini MDCCXXXV. F. Blondel arch."

This is a highly interesting interior, the chambre de commerce being particularly fine with oak panelling and carved ornament.

This concluded the morning's work, and the party then returned to their hotel for luncheon, but, being fairly well tired, the visit which M. Delabarre had intended should be made in the afternoon to the cathedral was abandoned, and a very enjoyable week's work terminated.

CONVALESCENT HOME, BUSHEY HEATH.

This building, of which Mr. John H. Curry is the architect, is for a children's home for fifteen or sixteen children, and is so planned that it can at any future time be made suitable for a private residence, and to get as much sun in the rooms as possible. It could be enlarged by adding a bedroom over the kitchen offices. There is a roomy hall and plenty of cupboards. Everything is of the simplest description. The bedroom on the ground floor is for the use of crippled inmates and others to avoid going upstairs, and there is to be a small movable bath in the cloak-room, emptied over the floor sink.

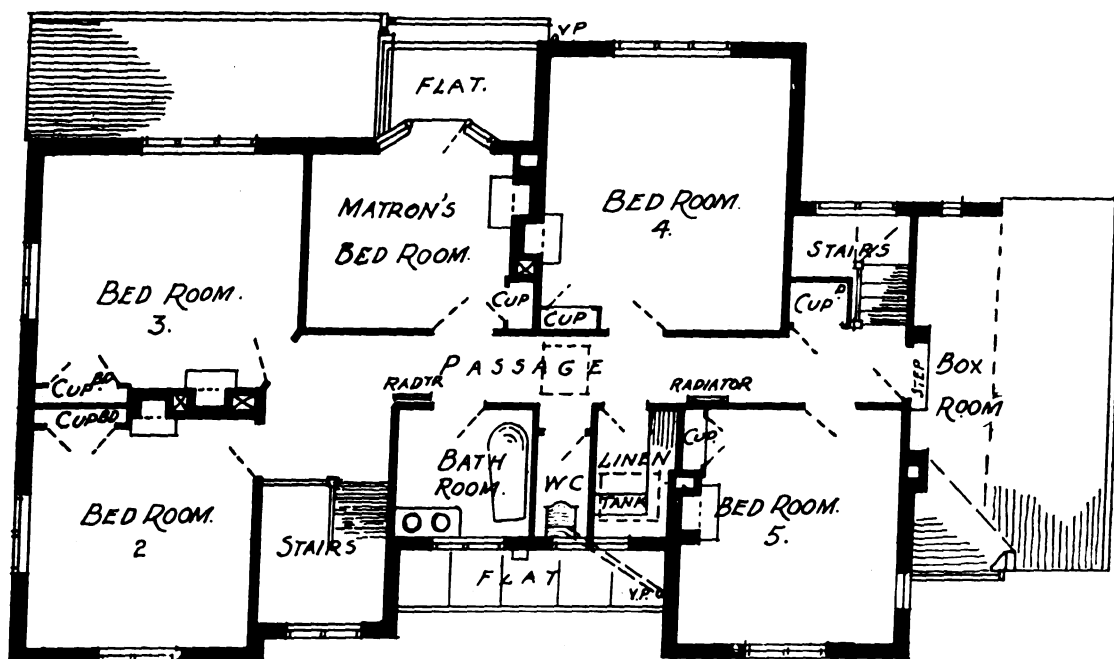
A white house was desired, so the walls are rough-casted in cement without pebbles, and left rough from the wood float and distempered. The woodwork of half timber and of the porch, including front door and window, are of oak. All windows where possible have fanlights to secure ample ventilation. There will be two "Ideal" radiators in the passage on the first floor, heated from the kitchen fire, with separate flow and return pipe, and a special boiler in the range.

Mr. W. D. Bridges, of Bushey Heath, is the builder, the contract price being £1,057. This works out at a little over 6d. per foot cube. The rainwater drains are taken into an existing well near by, and the water pumped up for household purposes. All the fittings are being worked to special details, the aim being to economise the working of the home.

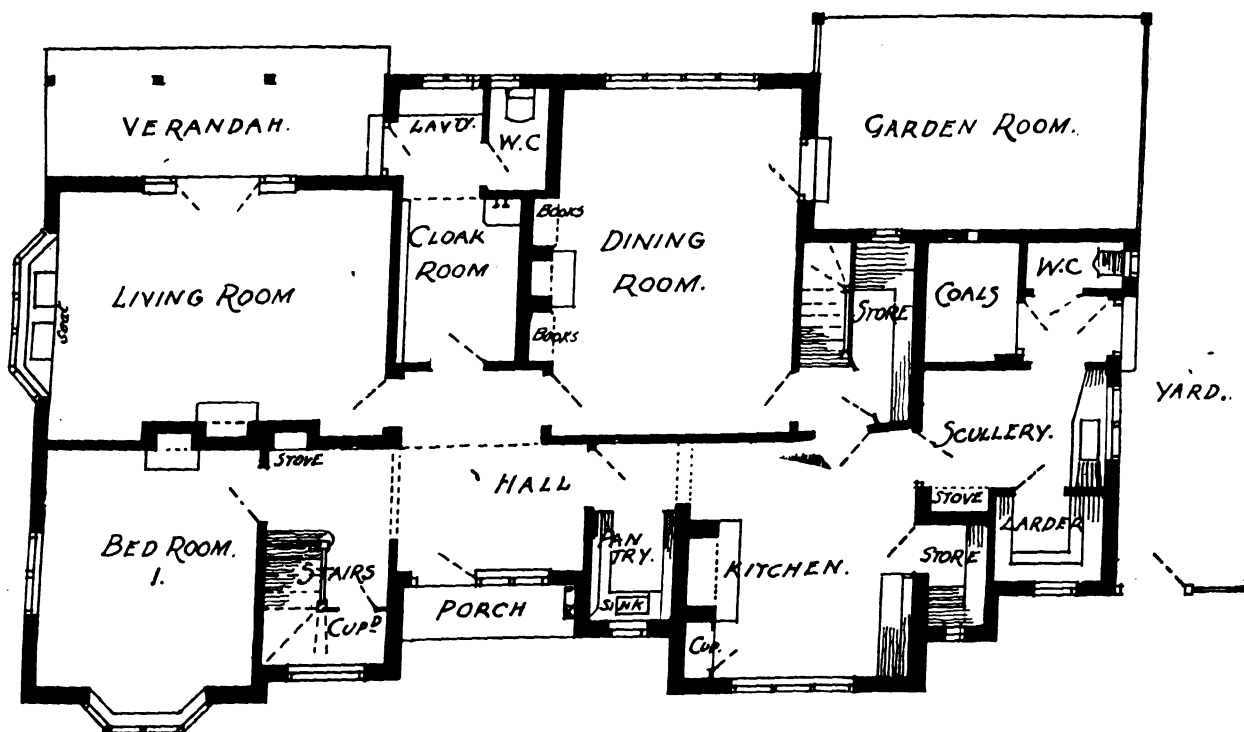
NOTES AND COMMENTS.

THE discussion on the alleged danger which threatens the beautiful Lady chapel of the Priory Church at Christchurch, Hampshire, started by a letter from Lord Ferrers, honorary secretary of the Society for the Protection of Ancient Buildings, seems very largely to have proceeded on the assumption that the "restoration" for which the bequest of the value of £5,600 is designated must necessarily be spent on the actual fabric of the chapel. It is admitted that there are repairs which are needed to the structure, and no doubt the intention of the testator was that the broken parts of the reredos should be replaced, but we think that the *Guardian* has offered quite the most reasonable suggestion—that it should not be impossible to restore the Lady chapel for use as a place of worship, without any sacrifice of its

CONVALESCENT HOME, BUSHEY HEATH.—J. H. CURBY, Architect



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

architectural amenities or associations, and with really worthy appointments that might serve as a model to less fortunate churches. We can appreciate the standpoint of the Society for the Protection of Ancient Buildings that the fact of damage having been caused to an ancient building, either wilfully or by the agency of time and weather, is part of its history, but we certainly cannot go so far as to approve the doctrine that such ravages should not be made good. There is a mean between the extreme reverence for historical ravages which would leave that which is broken still unattended and the practice of the Gothic enthusiasts of the nineteenth century, who cleared away everything that was "pagan" and "restored" what was considered to be the Mediæval original, following thus the example of those who had cleared away the barbarous "Gothick" in order to introduce the culture of Classic.

The robbery of mantelpieces from No. 15 Lincoln's Inn Fields is but an extension of the modern practice of dealers in antiques of stripping old houses of their

interior finishings, in order to achieve the enormous profits that can be obtained from the sale of examples of ancient craftsmanship to those who value such work simply on account of its antiquity and costliness, regardless of the principle that the greatest charm of such old work is that it is suited to its environment, and that when removed from the position for which it was originally intended it has lost more than half its value from an artistic point of view.

We are inclined to believe that the true reason for the admitted waning popularity of the great autumn exhibitions at Liverpool, as of those now abandoned by Manchester, is not the competition of the cinematograph but the overwhelming size of the exhibition which, like that of the Royal Academy, merely results in confusion of impression and a bad headache to those who would endeavour to do the show at one visit. The exhibition that consists of a relatively small number of pictures, properly hung without crowding, gives far more pleasure and far more benefit to those who visit. Such an ex-

hibition also allows of a rigid weeding out of the mediocre and indifferent and a restriction to only the best available examples, so that a higher standard of taste and a more rational appreciation may be obtained.

The use of double naves, which a writer in the *Norfolk Chronicle* discusses as being curious at Pakefield and Fritton, appears, in these two examples, to have been the result of an enlargement of the original structure, but at Reedham in Norfolk such an explanation hardly accounts for the plan, and it appears probable, therefore, that the use of a double nave rather than of nave and aisles should be regarded as a not uncommon feature of East Anglian church planning.

One can understand the increase in the costliness of cottage property, and its diminution by condemnation as unfit for habitation, when the views of the Local Government Board as to what constitutes fitness for habitation are set out in such terms as are included in the replies to questions addressed by the Medical Officer of Health of the Newton Rural Council to the Board. The questions and answers were:

Water Supply.—Should every house have a supply of water within 200 feet?—Yes, if obtainable.

Drainage.—Should all water closets be provided with a flush cistern where a public supply is available?—Yes. Should all houses have a separate closet if it is hand-flushed or consists of a pail?—Yes. Should each house be provided with a proper slop drain?—Yes.

Paving.—Should all washhouses and sculleries be paved or concreted; also yards in connection with dwellings, for, say, six feet around the house, made impervious?—Yes, for yards around backdoors in order to prevent nuisance.

Ventilation.—Should all windows be made to open on the top and bottom and through ventilation be provided where possible?—Yes.

Dampness.—Where houses lie below the surrounding ground, should the ground be trenched out to a level below that of the internal flooring, and should shutting and spouting be provided?—Notice to remedy defects, and suggest in the notice that it is the only satisfactory method of abating the nuisance.

Washhouses and Larders.—Should the provision of these be enforced where there is only one small downstairs living room?—Yes.

We are not altogether disposed to approve the suggestion made with regard to the extension of the Manchester Town Hall, that the additional accommodation required should be obtained by raising the present building to a considerably greater height. It is beside the mark to say that lofty buildings have been erected, as in the offices of the Royal Liver Society at Liverpool, of considerable architectural merit, as in this case the height was from the first an essential feature dominating the architect's conception. Any considerable raising upon an existing building must of necessity greatly modify the proportions and massing of the original design and in only a few instances will such modification be successful.

The City Corporation of Edinburgh obtained additional powers in various departments of civic administration under their new Act which came into force on the fifteenth of last month, and in the section relating to the Dean of Guild Court there is an important provision which has the effect of regulating the number of houses in a tenement. Under previous Acts of the Corporation the number of houses which it was permissible to provide in a tenement entering from a common stair or passage within the tenement was twelve; but by the new statute this is reduced to nine. Similarly in the case of houses which builders were allowed to erect in a tenement entering from a common stair or balcony outside the tenements the number has been reduced from twenty-four to twelve. It is also provided

by the Act that no increase will be permitted in the number of houses in an existing tenement beyond the respective numbers specified. It has been the practice in several cases hitherto to sub-divide large houses, thus increasing the number of houses in a tenement. In connection with these alterations, which might result in more houses than the numbers specified in the old Act becoming part of a tenement, the Corporation had no control, but these will now be dealt with under the provisions relating to the erection of new tenements.

Although there is not much of strictly architectural character in this month's issue of *The Connoisseur*, the number has nevertheless the first part of an interesting article on the city of Worcester, with views of the city from old prints and other illustrations. The second part of the article on Dr. Albert Figdor's collection of dolls' furniture, Vienna, contains suggestive illustrations of quaint transcriptions of antique household goods. An illustrated review of Mr. Thomas May's recent publication on *The Roman Pottery in York Museum* particularly deals with the fallacy of the usually accepted theory of the Medway foreshore accumulation of Roman earthenware.

COMPETITION NEWS.

BRIDLINGTON.—The Town Council have approved a recommendation to obtain competitive plans for the reconstruction of the small Floral Hall. This building at present only accommodates 1,200; it is proposed to increase its capacity to about 5,000 persons. The Corporation are to apply for Parliamentary powers to promote a scheme of improvement on the sea front, which is estimated to cost, inclusive of the Floral Hall, £50,000.

CANADA.—The Department of Public Works of Ottawa (Ontario) invites sketch designs in a preliminary competition for Departmental and Courts buildings. From the designs submitted six will be chosen by the assessors, the authors of which will be invited to submit more matured designs in a final competition, for which the five unsuccessful competitors each receive an honorarium of £600. The author of the design placed first by the assessors will be entrusted with the work. The Government has appointed Mr. T. E. Collcutt, Mr. J. H. G. Russell, and Mr. J. O. Marchand as assessors. Further particulars appear in our advertisement columns.

PLYMOUTH.—The Corporation are recommended by a sub-committee to offer premiums of £10 and £2 to landscape and other gardeners to lay out part of the face of the cliff.

SLOUGH.—Mr. Winter, architect, of Sheffield, has been awarded first place in a limited competition for designs for a Primitive Methodist church at Slough. The church is to cost £2,500, and to seat 350 persons.

ILLUSTRATIONS.

ROYAL COLLEGE OF SURGEONS, QUEEN SQUARE.

We illustrate the façade to Queen Square, Bloomsbury, of the New Examination Hall for the Royal Colleges of Physicians and Surgeons recently erected from the designs of Mr. Andrew N. Prentice, F.R.I.B.A., to supersede the old Examination Hall on the Embankment.

The ground floor consists of a central waiting hall and offices for the clerical staff, the examination-rooms and their attendant waiting-rooms occupy the first, second, and third floors, while the fourth and fifth floors are the headquarters of the Imperial Cancer Research Fund.

The exterior of the building is carried out in Portland stone and Lawrence's red bricks. The general contractors were Messrs. Holland & Hannen, of Hyde Street, Bloomsbury.

ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.

We publish this week further illustrations from drawings made by Mr. L. Sutton Wood on the Architectural Association excursion, showing the château at Fontaine le Bourg, the château at Saint Germain-sous-Cailly, and the Abbey of St. Georges de Boscherville, which have been mentioned in our account of the excursion. We shall give further reproductions of Mr. Sutton Wood's drawings next week.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

PRESUMABLY the holiday season has operated to reduce the number of our contributors this month. The subject of staircases is one that should receive the careful attention and frequent study of every architectural student.

"Improver" has selected an interesting domestic staircase in wood with wrought-iron balustrade, which is somewhat lacking in grace, and is rather the work of a designer endeavouring, not very successfully, to follow the ideas of an Italian artist. The panelling of the walls and the details of the woodwork are characteristically English eighteenth-century work. "Improver's" drawing is commendable for care and thoroughness.

"Refuge" sends a measured drawing of one of four similar staircases from the Keelmen's Hospital, Newcastle-on-Tyne, which contains an example of the use of thin balusters shaped from the contour of turned moulded patterns, whose plagiarism always grates on the association of ideas resulting from familiarity with the normal. "Refuge" has done well to draw the details full size, but a plan, even to a small scale, would have been an added advantage.

"If" has very thoroughly and well measured and drawn an excellent staircase from No. 20 Market Street, Poole, Dorset, the detail of which is particularly well worth study.

"Plato" also has chosen an admirable piece of staircase design from the Guildhall, Rochester, and has made a satisfactory and workmanlike drawing.

We award this month prizes of one guinea each to "If" and "Plato."

THE ARCHITECTURE OF RAILWAY STATIONS.**V.**

ALTHOUGH the previous chapters do little more than indicate the general lines on which the railway station has developed, they serve to show the wonderful strides made since the days of William IV., when first the problem of such buildings came into the arena of architecture. So before leaving the subject it is well to draw attention to the various aspects and details of that problem as it confronts us to-day.

The initial difficulty lies in the existence of an unnatural gulf between engineering and architecture. Fortunately the impropriety of such an *impasse* is realised by most thinking architects, and has recently been emphasised by one of the most brilliant and thoughtful among them. In America the architect is himself well trained in the theory of structural mechanics, and moreover he usually keeps in his office more than one qualified engineer. In England the architectural features of a large railway station are too often left to the mercies of the Company's surveyor (who seldom has had either the training or experience essential to such work), or to an invisible and underpaid subordinate.

Where an outside architect is employed, whether selected in competition or invited personally, he is usually provided with a cut and dried plan of the station, and asked to design a façade to be tacked on to the steel framing. Such a course can never be thoroughly successful. The greatest difficulty in putting such work to competition is that in most cases large stations are primarily engineering reconstructions of the greatest possible complexity, and that it is therefore impossible to furnish architectural competitors with definite conditions. The only feasible course seems to be for architect and engineer to collaborate from the very outset so that the scheme evolved should gradually emerge as a fine building as well as a practicable station. This course presupposes a selected architect and precludes competition, but save in the case of an entirely new station—such as Marylebone—it appears the only way of producing the admirable combination of utility and beauty to be seen in the latest terminals of America.

Questions of approach and alignment, of grouping and of symmetry, of steel roofing and columns—all these are of supreme importance to the architect, yet time after time they are laid down in advance by the engineer, and the

architect's functions are limited to covering as much of the engineer's skeleton as the Company can afford with brickwork or stone or terra-cotta.

It would be a manifest impertinence in such a paper as this to set forth any theory as to the best style of architecture to be adopted for a railway station. The Gare d'Orléans in Paris, St. Pancras in London, the Grand Central in New York—each represents in concrete form a different mode of design, and each is good of its kind. But beyond these revivals, so-called (adaptations to modern needs in reality), there is appearing in some quarters a genuinely original spirit in railway-station design, of which the great new terminus at Leipzig is an example, which should be developed and encouraged just because it is new. A railway is not and never can be completely reconciled with the Middle Ages or the Renaissance, and this new disposition of German artistic genius to produce a style suited to lattice girders and arc-lights is altogether praiseworthy.

There are no axioms controlling the external design of railway stations beyond the precedents of past architects. There is no particular reason why the train-shed roof should be visible or why it should be hidden. The entrance should naturally be as important as good proportion permits, and the façade of a terminus offers a reasonable excuse for a monumental design. But a comparison of examples such as the stations of Antwerp and of Paris (Orléans) will show that, though a florid design may be perfectly successful, as in the latter case, it may be merely vulgar, as in the former, and thus that the canons of good design prevail for railway stations as for all other buildings.

The interior features, however, are more productive of criticism. The great arched roof, which attained its zenith in England at St. Pancras, will probably never appear again in this country. The modern tendency is to use a roof not more than fifty or sixty feet high in the largest stations, carried on steel columns in bays of about 50 feet by 30 feet, designed on some form of ridge and furrow principle, and glazed with one of the newer types of patent glazing.

The practice of leaving most of this steelwork exposed is gaining popularity, and a fine set of photographs published some years ago of the Orléans Station in Paris, created some doubt as to whether the steel framing of this interior was not more attractive than the coffered plaster-work which now covers it.

Another essential in the modern terminus is the wide space at the ends of the platforms known as the concourse or circulating area. Where level, as is usual in England, this is left open and roofed as part of the train-shed (as at Victoria and Waterloo), but where the platforms are below the concourse level a glazed screen is provided (as at Baker Street). At the huge terminus at Washington the concourse is roofed separately and treated as a hall.

A central hall usually contains the booking offices, and should be lofty. That at Victoria is of the minimum height for effect. The increasing size of the glazed roof outside the station tends to break up the façade, and one could wish for a wider use of the idea originated at the Grand Central Station, New York, where carriages drive under the columns of the main front.

Continental and English systems differ very much in the use of the waiting-rooms, which are of greater importance abroad—passengers being locked up therein until a certain time before the departure of the trains. In England the whole of the station buildings are usually open at all times, though of late the platforms are being fitted with Bostwick gates, where tickets are examined (as at Victoria and Waterloo). The Continental waiting-room is therefore of greater importance, and in recent examples has been made more comfortable, as is most essential for such places.

Refreshment-rooms abroad frequently open out of waiting-rooms, or a small buffet is provided in the room itself (as at Basle). Large dining-rooms are also required to a greater extent abroad—where passengers may be travelling several days, or where, as is so common in America, they may have to wait half a day to make a connection on another line—than in England, where the longest distances are relatively short, and where a restaurant-car answers the purpose. The dining-room at the Gare de Lyon in Paris is a case in point, while it is said that a firm of contractors pays £4,000 a year for the rent of that at Cologne.

In the same way baths and toilet-saloons are provided



FIG. 1.—PLAIMPIED.—GENERAL VIEW.

at all the big American termini, though they are found in only a few of the large London stations.

In the direction of sanitary science this country has always held a premier position, and the foolish jests about "dirty foreigners" are only too true in most European stations, especially in the Latin countries. In England the lavatories, now usually placed underground and well ventilated, are perhaps the most sumptuously fitted feature of the newer termini, and have been greatly improved in the older ones.

In this direction, as indeed throughout the buildings, a great advance has been brought about by the increasing use of "Carrara" ware and terra-cotta, as also of glazed bricks and tiles. The new stations on the Tubes and the Metropolitan are invariably cleanly and cheerful, thanks to this feature, which, together with the many inventions connected with illumination and illuminated signs, makes them all that Ruskin desired them not to be.

In Paris, and in other places where electrification has been effected, fresco painting has actually been employed in mural decoration, and, wherever smoke can be eliminated, such a method of ornament would be an added attraction and might become a very successful form of artistic advertisement of places on the line.

In England very little has been done to embellish urban stations with trees and palms, but this is again a possible improvement, and could be feasible once the sulphur fumes were abolished. A good example of such decoration is to be found in Ghent.

The last point to be emphasised in connection with this subject is the great importance of the relation of the terminus to the city of which it forms the modern gateway. The fine new buildings of Victoria Station are utterly lost behind the awkward block of shops which conceals them, and from a purely utilitarian point of view the approaches for vehicular traffic are very bad. Waterloo is even more congested, and it is difficult to see how the expensive reconstruction scheme now in progress can ever show the station buildings to advantage. King's Cross is visible from the road, but the approaches are dangerous; Paddington and Charing Cross are cramped; the arch of Euston is hidden behind its hotel; and only St. Pancras fulfils all the desiderata of town-planning.

In this respect Continental towns are far ahead of us. In every important town a good system of trams leads up to the piazza in front of the terminus, thus becoming, as it ought to be, the traffic focus of the city, distributing

passengers to the most distant suburbs. Planted with trees, the station-square becomes one of the beauty-spots of the place instead of an ugly yard. And here America has realised her shortcomings, for it is only within the last few years that her stations have been regarded with the importance which they undoubtedly possess in any scheme of civic order. It is regrettable that apparently insuperable obstacles confront us in England when we consider the possibilities of improving the mean and unsightly approaches to our great terminals. But by bringing the whole subject of railway architecture into current politics a much-needed remedy may be found.

BIBLIOGRAPHICAL NOTE.

(N.B.—There are no books dealing specifically with the architecture of railway stations. The author, however, indicates below a few sources where information and illustrations may be obtained in an accessible form.)

A.—Works on Railways in General.

- Acworth, W. M., *The Railways of England*. 8vo. 1900.
 Daggett, S., *Railroad Reorganisation*, in "Harvard Economic Studies." 8vo. 1900.
 Godwin, George, architect, Pamphlet by, in R.I.B.A. Library.
 Gordon, W. J., *Everyday Life on the Railroad*. 8vo. 1890.
 Gordon, W. J., *Our Home Railways*. 2 vols. 8vo. 1910.
 Gordon, W. J., *The Story of Our Railways*. 8vo. 1896.
 Grinling, C. H., *The Ways of Our Railways*. 8vo. 1905.
 Ross, H. M., *British Railways*. 8vo. 1904.
 (See also Official Guides and Histories of the various Companies.)

B.—Early Railways in England.

- Bury, T. T., *Coloured Views on the Liverpool and Manchester Railway*, with plates by R. Ackermann. Folio. 1831.
 Tait, A. F., *Views on the Leeds and Manchester Railway*. Folio. 1845.
 Towns that Refused Railways. Article in "Railway Magazine." Vol. IX.
 The Oldest Railway Station in the World. Article in "Railway Magazine." Vol. XI.
 The Stockton and Darlington Railway. Article in "Railway Magazine." Vol. XII.

Some Old Railway Books, by S. Kirkward. Article in "Railway Magazine." Vol. XIII.
(See also lives of the early engineers—Stephenson, Brunel, &c.—official guides as before, and postcard views published by L.N.W.R.)

C.—Illustrations and Descriptions of Stations.

Great Britain.—Notable Railway Stations: Series in "Railway Magazine":—

Vol. V.—1, Liverpool Street (G.E.), London; 2, York (N.E.).

Vol. VI.—3, Euston (L.N.W.), London; 4, Waverley (N.B.), Edinburgh; 5, New Street (L.N.W. and Mid.), Birmingham.

Vol. VII.—6, King's Cross (G.N.); 7, Paddington (G.W.), London; 8, Temple Meads (G.W.), Bristol; 9, Carlisle (L.N.W.); 10, Victoria (G.N. and G.C.), Nottingham.

Vol. VIII.—11, Central (N.E.), Newcastle-on-Tyne; 12, Queen Street, Glasgow; 13, Snow Hill (G.W.), Birmingham; 14, Victoria, Manchester.

Vol. IX.—15, Edinburgh, Princes Street; 16, Swindon (G.W.); 17, London Road, Manchester.

Vol. X.—18, St. Enoch, Glasgow; 19, St. Pancras (Mid.), London.

Vol. XII.—20, Preston (L.N.W.).

Vol. XIII.—21, Bank Top (N.E.), Darlington; 22, Wellington (Mid.), Leeds.

Vol. XIV.—23, Carnforth; 24, Lancaster; 25, Bolton; 26, Stockton.

Vol. XV.—27, Leeds (N.E.), New; 28, Nottingham (Mid.); 29, Norwich, Thorpe (G.E.).

Vol. XVIII.—35, Sheffield (Mid.).

Vol. XIX.—36, Doncaster (G.N.).

Vol. XX.—37, Central (Cal.), Glasgow; 38, Cardiff (G.W.).

Vol. XXI.—39, Stafford (L.N.W.); 40, St. David's, Exeter; 41, Central, Liverpool.

Vol. XXIII.—42, Cambridge (G.E.); 43, Victoria (L.B.S.C.), London.

Vol. XXIV.—44, Rugby (L.N.W.); 45, North Road, Plymouth; 46, Kilmarnock; 47, Berwick-on-Tweed.

Vol. XXV.—48, Manchester Exchange.

Vol. XXVII.—Waterloo (L.S.W.), London.

Vol. XXVIII.—Victoria (L. and Y.), Manchester.

Vol. XXIX.—Marylebone (G.C.), London.

Vol. XXX.—Inverness, Huddersfield.

Vol. XXXI.—Snow Hill (G.W.), Birmingham.

Continental.—Antwerp, "Railway Magazine." Vol.

XXIX. Berlin, Anhalter Bahnhof, "Railway Magazine."

Vol. XVII. Berlin, Stettiner Bahnhof, "Railway Magazine."

Vol. XVII. Berlin, Overhead Railway, "Railway Magazine."

Vol. XVIII. Cologne, "Railway Magazine."

Vol. XVI. Dresden, "Railway Magazine." Vol. XVI.

"Scribner's Magazine." Vol. LII. Frankfurt, "Railway Magazine."

Vol. XVI. "Scribner's Magazine." Vol. LII.

Genoa, "Scribner's Magazine." Vol. LII. Hanover,

"Railway Magazine." Vol. XVI. Lucerne, "Rail-

way Magazine." Vol. XVI. Mayence, "Railway

Magazine." Vol. XVII. Magdeburg, "Railway Magazine."

Vol. XVII. Milan, "Railway Magazine." Vol. XVII.

Ostend, "Railway Magazine." Vol. XXIX. Paris, St.

Lazare, "Railway Magazine." Vol. XVI. Paris, Est,

"Railway Magazine." Vol. XVI. "Scribner's Magazine."

Vol. LII. Paris, Lyon, "Scribner's Magazine." Vol. LII.

Paris, Orléans, "Scribner's Magazine." Vol. LII. "Archi-

tectural Review." Vol. XIV. Rome, "Railway Magazine."

Vol. XVII. Strassburg, "Railway Magazine." Vol. XVII.

Turin, "Railway Magazine." Vol. XVI. Vienna, Sud-

bahn, "Railway Magazine." Vol. XVII.

Colonial.—Calcutta, Howrah, "Architectural Review."

Melbourne, Flinders Street, "Railway Magazine."

Vol. XXX.

American.—New York, Pennsylvania Station, "Archi-

tectural Review." Vol. XXX. Washington, Union

Station, "Architectural Review." Vol. XXX.

(N.B.—For all the best American stations see illustrated

articles in "Scribner's Magazine." Vol. LII. See also

numerous magazine articles in Poole's "Index to Periodical

Literature.")

PLANS were submitted at a meeting of the Town Improvement and Streets Committee of Newcastle Corporation last week, on behalf of the trustees of the late Mr. W. B. Sutton, for four rows of tenement dwellings, each consisting of thirty-three tenements and 50 ft. apart, proposed to be erected at Newcastle-on-Tyne.

THE ABBEY CHURCH OF PLAIMPED, CHER.

By J. TAVENOR PERRY.

BETWEEN eight and nine miles to the south-east of Bourges lies the very-little-known and quite-off-the-road-to-anywhere village of Plaimpied, with its till recently venerable abbey church. It is not mentioned in Murray or Baedeker, Joanne dismisses it in a few words, while Viollet-le-Duc merely gives

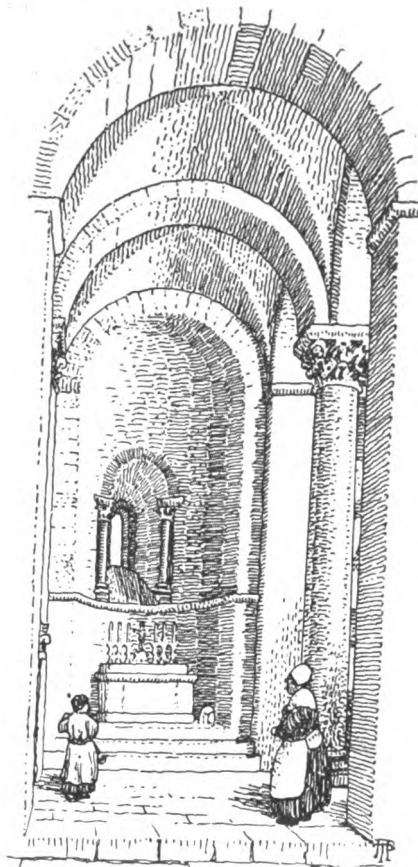


FIG. 2.—PLAIMPED.—NORTH AISLE OF CHOIR.

its name among his list of noteworthy churches in France; but the omniscient Professor Freeman somehow became aware of it, and in his "Norman Conquest" * speaks of its crypt,

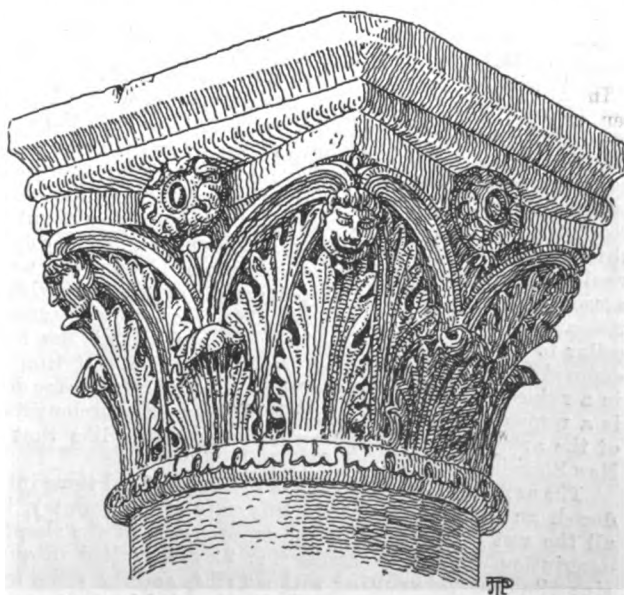


FIG. 3.—PLAIMPED.—CAPITAL IN CHOIR.

together with St. Jean et Poitiers, as examples of primitive architecture in France to be compared with our own Saxon work. Prosper Mérimée, in one of his archaeological tours, came across it, and deals with it in a few lines of description; and it may perhaps have been due to his notice that the

* *Norman Conquest*, vol. v., p. 618.

church was classed among the historical monuments of the country, and when I, with the late Henry Jarvis, visited it in the hot summer of 1866 it was in the hands of an army of workmen. As of its ultimate doom there could be but little doubt, the sketches then made may be of value. The fate of such "historical" buildings was generally as sad as that which overtook many an English cathedral or ancient church under similar circumstances during the middle of the last century, though not so bad as those which destroyed the famous mill overlooking the field of Crécy, from which our Edward III. is supposed to have viewed the battle. Frequent as it was, to the profit of its owner, by casual English and crowds of American tourists, the *amour propre* of the then Government was offended, so they declared it to be a *monument historique*, and promptly pulled it down.

The village of Plaimpied lies scattered along the left bank of the river Auron, an affluent of the Cher, and by the side of the great canal begun by the Duc de Berri, which runs from near Tours to Nevers, and cuts off the great elbow in the Loire. The country hereabouts is, like the rest of the fertile county of Berry, of a pretty and cultivated character, and the trade of the little village is purely agricultural, with its vineyards interspersed among fine foliage. The views of the great cathedral of Bourges on the road hither are very impressive. It is only from a distance when the surrounding houses are lost to view that the huge bulk of its enormous roof can be appreciated; and as this spans the five aisles, without any break for transepts, it looks like the upturned hull of a mighty ship.

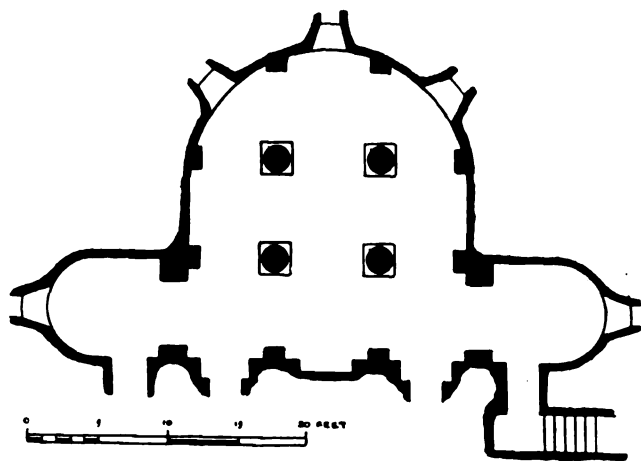


FIG. 4.—PLAIMPIED.—PLAN OF CRYPT.

The abbey church of Plaimpied (fig. 1) consists of a nave with north and south aisles, shallow transepts, and a choir with north and south aisles, all three terminating in simple apses. At the crossing is now a tower, but originally it was covered with a dome on pendentives, as at St. Etienne, Nevers. The choir and transepts were covered with a barrel vault slightly pointed, and this seems to have been the case with the nave; but it must have fallen when the south aisle gave out, which would also have fallen but for the great buttresses built against it at the time of the failure. The roof over the nave and aisles was constructed without a through tiebeam, so as to allow of the greater height of the vault in the centre, and is framed in oak. Over the nave arcades are posts 7 inches by 6 inches, rising 7 feet, with a tiebeam at their head 9 inches by 8 inches, which forms a collar to the rafters with angle struts, and all this has been exposed to view by the fall of the vault. The west front is in a ruined or incomplete condition, as south of the west door is a respond, indicating either a narthex or a prolongation of the arcades, and giving an effect somewhat like that of New Shoreham.

The arches of the crossing have voussoirs of red stone introduced, an unusual feature in this part of the country, but all the rest of the work in the transepts is of the simplest description. The choir aisles (fig. 2) are vaulted in quadripartite concrete vaulting without ribs, and the aisles open to the choir by arcades of two arches carried in the centre by cylindrical piers with capitals of a very Classic appearance, suggesting Roman influence (fig. 3). This is not impossible, though all connecting links have disappeared, for there are remains of an aqueduct in the neighbourhood, and a Roman road, some traces of which are yet to be seen, ran through the place.

Beneath the choir is a fine crypt, of which we give a plan (fig. 4). It was originally entered through two apsidal

chapels under the aisles from the transepts, but these entrances are now closed, the south one being diverted to an external doorway in the south transept wall, as shown in our illustration (fig. 5). It is this crypt that Professor Freeman regards as an example of "primitive architecture" in France, and it is certainly much older than the choir or any part of the church above it, or than the date of 1082, which is usually given for the founding of the Augustinian abbey to which the church belonged. At the same time, it can scarcely be as old as the Merovingian baptistery at Poitiers, with which the Professor has bracketed it; and in the absence of any authentic record may be assumed to have been erected early in the tenth century. Our illustration (fig. 6)

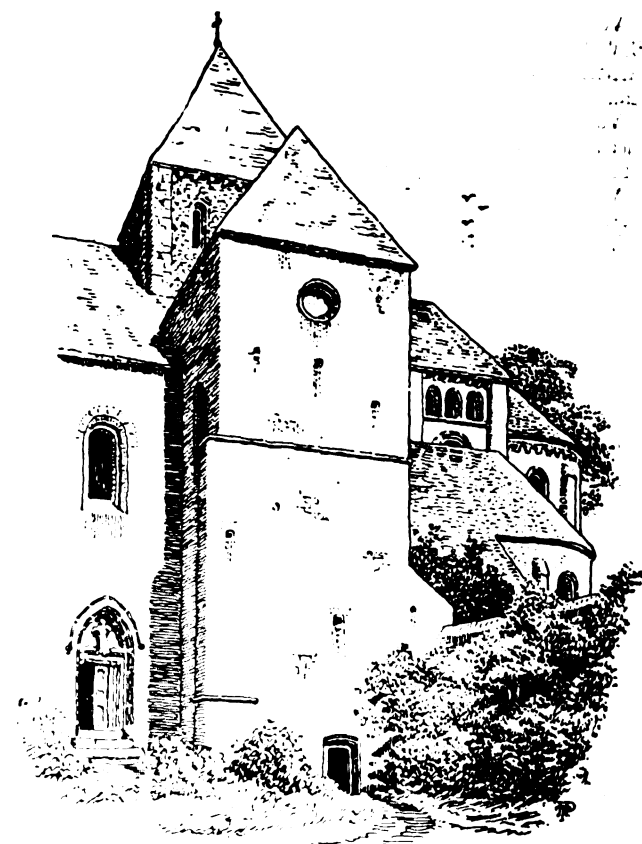


FIG. 5.—PLAIMPIED.—EXTERIOR OF SOUTH TRANSEPT

will give the best idea of its aspect. The vaulting is quadripartite, without ribs, but with cross arches of stone resting on baluster shafts of a rude character, which, with their bases and peculiar capitals, are only 5 feet 6 inches high altogether. It is very dark, being only lighted by five small windows through very thick walls, but it was decorated throughout, the vaulting being sewn with rosettes about 8 inches apart, and the walls ruled with a masonry pattern, all in red ochre on a yellowish ground.

Of the history of the place there is little to relate. The church itself is said to have been built by Richard, Archbishop of Bourges, in 1080, who died in 1092, and was buried in it, and the abbey to which the church was attached was of the Order of St. Augustine. The only incident recorded in its subsequent history is that Charles VIII., while residing at Bourges during the Hundred Years War, slept one night in the abbey.

ENGLAND'S ACRES: THE STORY OF LAND OWNERSHIP.*

By JOHN GEORGE HEAD (Fellow).

(Concluded from last week.)

THE manorial and feudal systems, therefore, although they no longer exist as such, have been woven into the fabric of our land tenures and are commemorated among us by the terms used and customs observed in connection therewith; but ownership by right of conquest has gone, and the distribution of land by favour, in return for nominal or fanciful services, is equally defunct. Those of us, therefore, who, in spite of recent legislation, still

* A Paper read at the Oxford meeting of the Surveyors' Institution.

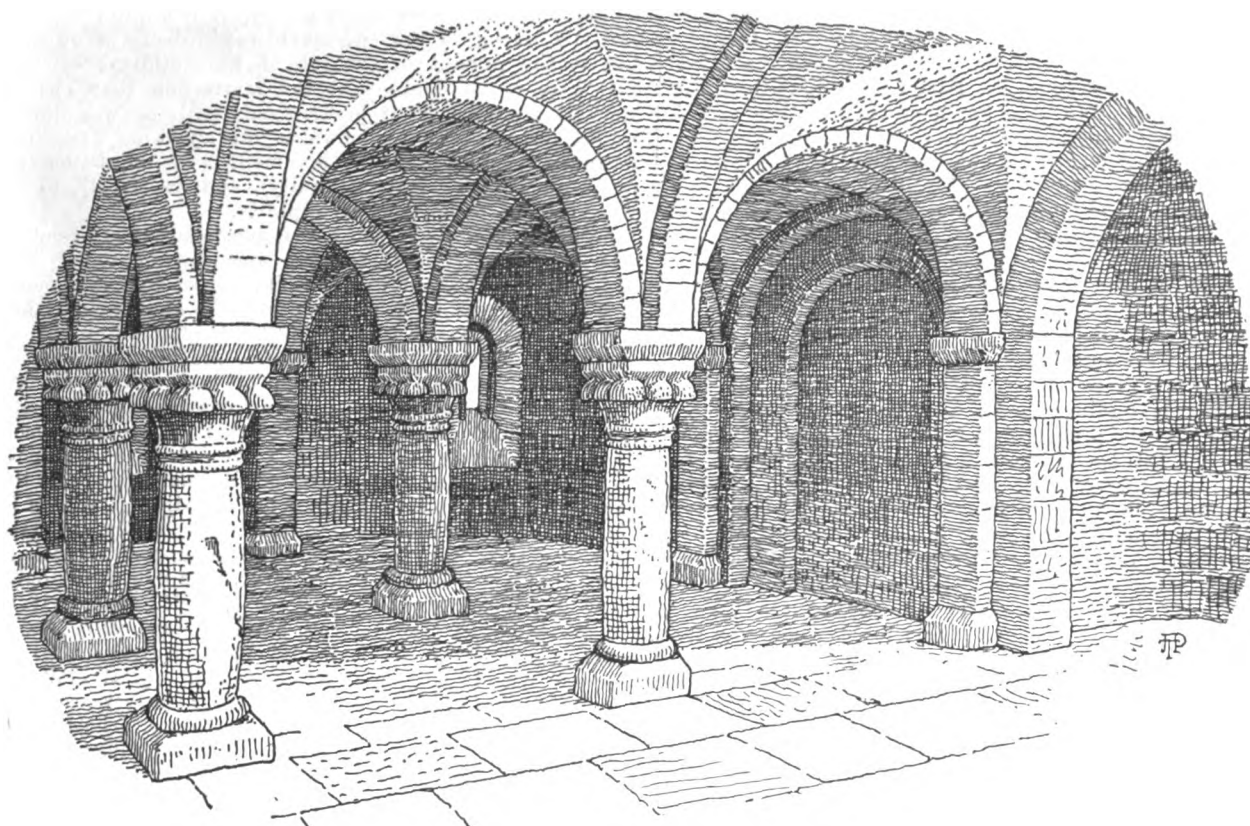


FIG. 6.—PLAIMPIED.—VIEW OF CRYPT.

aspire to acquire land must be content to do so by the less picturesque but more reliable methods of inheritance or purchase, and to hold it upon one of the three forms of tenure which are the survival and the outcome of those which we have been considering. The three forms of tenure are:—

Freehold, of which the general meaning is that the land is the absolute property of the holder, without payment of any kind in the nature of rent or fine, although in the North of England one frequently meets with freeholds, so called, in respect of which the owners make an annual payment called a chief rent.

Copyhold, so named because the only title the owner can show to his land is the copy of the court roll or register of the lands belonging to the manor. The lands are held sometimes for ever, as in the case of freeholds, and sometimes for a limited term, as in copyholds for lives, but in all cases the owner must make to the lord of the manor, upon the happening of certain events, payments in money or in kind. As a rule copyhold is regarded as a sort of freehold, subject to payments and other contingencies according to the custom of the manor: indeed, certain copyholds are known as customary freeholds.

Leasehold, which, as its name implies, is the holding of land from the freeholder upon a lease for a definite term, at the end of which the land comes back into possession of the freeholder. Leaseholds may be held for any term, long or short, and the rents payable may vary from the rack-rent down to the peppercorn; but the properties so held all possess this one characteristic—they pass at length from the possession of the leaseholder and revert to the superior owner.

We are now in a position to give some sort of answer to our first questions, as to the ownership of the land, and the source from which such ownership is derived. The land is parcelled out among millions of owners, who have acquired it by inheritance, by gift, by purchase, or by conveyance to them in some form or another. They derived it from others who had similar rights extending through the long chain of varying circumstance—of forfeiture and restoration, aggregation and division, purchase and sale, right back to the original gift and distribution recorded by the Domesday Book. It is said that the researches of the Government Valuation Department have discovered lands which have remained in the possession of families who had held it without interruption since the record of the Domesday Book, but such cases must be rare. So many events combine to

break the line of descent. Whole families have been wiped out by war, pestilence, or private quarrels, or have become extinct from failure of issue; political changes have resulted in banishment and change of ownership; financial embarrassment, the opportunity of profit and many other reasons have induced a sale of the estate, and few indeed must be the cases in which the chain of ownership has been unbroken during the long years which span the gulf between the Domesday Book and its modern equivalent.

There are, indeed, certain modes of acquiring land other than those which we have stated above, as, for instance—

By compulsory powers conferred by Act of Parliament for the public benefit, including the Inclosure Acts as mentioned above; or

By adverse possession for a prescribed period.

In the good old proverb "An Englishman's house is his castle" is embodied the principle which lies at the root of all our land laws, and which is crystallised in yet another proverb, "Possession is nine points of the law." This principle is characteristic of all tenures of land, whatever their duration and whatever the conditions of the holding—of a weekly tenancy, of a lease for 999 years, or of tenure in perpetuity. This right of possession is so jealously guarded that an owner having let his house or land to another may not even enter thereon without his tenant's permission, unless a special right to do so be reserved in the document creating the tenancy. So firm, also, is the hold with which this principle endows an owner or occupier of land that an Act of Parliament is necessary to dispossess him. But private rights must be subservient to public good, and, therefore, Acts of Parliament are obtained for the construction of railways and other undertakings of public importance; the land required is secured, and large areas become the property of corporate bodies. Yet even in this apparent breach of its privilege the sacredness of possession is in reality recognised and honoured, for it is a condition established by custom and by legislation alike that the person who is disturbed in his possession of the land shall receive adequate compensation therefor. The attempt to do away with this right of compensation, which was made in a recent Licensing Bill, was one of the chief causes of its rejection as being an offence against the rights of the subject and the principles of fair dealing.

It has been mentioned that during the eighteenth century many private Acts were obtained, of which the effect was to enable private owners to enclose lands for the purposes of better cultivation. In view of the large numbers of private Acts so obtained, and of the great increase of population, representations were made to

Parliament that much of the land then unenclosed and lying waste might be more profitably employed if permission were given to enclose it. Commissioners were appointed, upon whose advice Parliament sanctioned the enclosure of large areas upon terms which were then agreed upon. In this manner therefore a considerable quantity of land hitherto unenclosed passed into private ownership, and by the application of capital and labour was rendered fertile and productive to the community. The area of lands unenclosed became less and less; with the growth of population the demand increased, and in the early part of the last century the necessity became apparent of taking steps to preserve for public use all the land which could be saved. J. S. Mill wrote strongly on this point, and from that time onward there has been a growing watchfulness against the absorption of any land which could be retained for the people.

There is at the present time no such thing as "no man's land." Of the open spaces some have been secured for the people for ever, such as Hampstead Heath, Epping Forest, and the public parks throughout the country; but the remainder, the great ranges of mountains, the moorlands, and even the foreshore, have their owners. Although many of them are open to those who wish to wander over them, and others are subject to rights of way, right of pasturage, and rights to cut timber or turf, they have yet their lord of the manor, who owns the soil and all beneath, and without whose permission even a load of sand or pebbles may not be removed. The very roadside wastes do not escape, for they are claimed by one or other of the trio of owners formed by the lord of the manor, the freeholder of the adjoining land, and the highway authority. Every square foot of land in England belongs to somebody, in many cases to more than one person. There may be several who own an interest therein, and it is their possession of that interest which secures them in the enjoyment. But here is a joint in the armour which must be strictly watched. Just as possession is the root principle of ownership, so adverse possession may threaten and even destroy that ownership. The landowner should therefore beware of the squatter, lest an omission to enforce his legal rights in due time result in the intruder gaining a legal title to the land he occupies, and it be found impossible to dislodge him.

After twelve years' adverse possession by anyone who has wrongfully taken possession of the land, an action to turn out the intruder will not succeed, so that he obtains what may be termed a "possessory title." It is true that there are various reservations as to the time at which the twelve years may be said to commence, as in the case of the infancy or lunacy of the rightful owner—but these allowances may not extend beyond thirty years, so that although the trespasser can make no marketable title until after that period, he will then have established his claim as firmly as if he had held the land from time immemorial.

Instances of valuable property being acquired in this way will occur to the minds of many of those dealing with landed property, cases where continued residence in a house without the payment of rent for a long period of years has conferred on the occupier an indefeasible title to the freehold. Well known to the public also are the cases of the apple stall near Apsley House, and of the cowshed in the Mall, in both of which instances substantial compensation had to be paid to the owners before the authorities could get rid of an obstruction which at first sight appeared to be almost negligible.

As a method of acquiring land by adverse possession, by a procedure rather more speedy in its operation than that just described, there may be mentioned a curious custom which prevailed in mountain and mining districts until a comparatively recent date. On the Welsh hill-sides there may be seen a number of scattered one-storey buildings, called by the natives "Ty un os"—"one-night houses." It is said that they derive their name from the fact that they were built in a single night, and that if the builders succeeded in erecting the walls and roof and in kindling a fire on the hearth between sunset and sunrise they became possessed of the freehold.

The writer has seen, near Llangollen, a building on mountain land which was stated, on quite reliable authority, to have been not only erected and acquired in this manner, but to have been subsequently sold; presumably, therefore, someone was found willing to accept the title.

The custom is said to be nearly, if not quite extinct, probably owing to the increased watchfulness of owners, and to the prompt destruction of the buildings erected, but there is no doubt that the impression that such a proceeding gave a right to the lands built on was widely spread, since cases are known as far apart as Yorkshire, Devonshire, and Wales. This method of acquisition is, however, fraught with difficulty, and is hardly to be recommended in spite of its rapidity.

Having now dealt with the questions which troubled our traveller on his journey, and having found that every special piece of land has its owner, who presumably has a tight hold upon his property, the question may now present itself as to whether or no land ought to be the subject of ownership at all. There are many who regard land as so radically a necessity of life, just as air and water are, that all proprietorship in land should be vested in the nation. The supporters of this theory urge, among many other reasons, that the value of land frequently increases by reason of the work of the community, and that therefore the individual owner has no right to receive the benefit of that increase. But it may fairly be asked whether those who hold that opinion do not overlook the fact that much of the increased value is due to the outlay and enterprise of the proprietor himself; indeed, it has been stated that, excluding building land and land in cities and towns, the value of the remainder does not exceed even if it equals the amount of capital sunk upon it in drainage, manuring, and other improvements. It is urged also that the Government ought to hold all the land, leasing it to individuals for terms of sufficient length to enable them to get an adequate return for any capital sunk therein, but retaining for the nation the reversion which should upon the expiry of the lease bring in large revenue for renewals. This suggestion is attractive and might be advantageously applied to new countries, but it would be totally inapplicable to a country like England, where the tenure is so complicated and where the existing interests are so enormous in value and so varied in character.

To expropriate the owners without compensation would be in the highest degree dishonest, but, on the other hand, to provide the sum necessary to compensate all the various persons interested would appal even the stoutest Chancellor of the Exchequer. The late Mr. Gladstone is said to have remarked upon this subject: "That anyone who proposed to take land without compensating the owners would be a rogue, and he that suggested buying it up in the ordinary way would be a madman."

In New Zealand land is held by the Government, leases are granted for long terms, and the owners have the option of renewal; but in Canada and other overseas Dominions it is still found the better policy to convey the freehold outright so as to induce the owner to spend the capital necessary to make the land fertile and productive to the national welfare.

It cannot be denied that a sense of ownership in the land brings with it not only a powerful incentive to expend labour and capital on its improvement, but also a stability of interest which is of the greatest value, and that this principle is generally recognised is shown by the eagerness of both of the great political parties to facilitate the acquisition of small holdings and to increase by every legitimate means the number of those who have a personal interest in the land.

In conclusion, we have seen how the land tenure of to-day is the outcome of long centuries of development; it has grown from the feudal holding, fettered by arbitrary restriction and burdensome military service, to settled possession, subject only to taxation imposed by the people's Parliament; from servile villeinage to free and undisputed ownership. Stress and struggle have converted the sanctity of possession into the sanctity of home.

As our ancestors strove for the one, let us guard the other. There is small likelihood in these days of aggression by monarch or noble upon the rights of the people, but are we equally sure that danger is not advancing from the other direction? Can it be denied that we are becoming enmeshed in a network of regulations and supervision, which, whether or not it be for the general good, is certainly encroaching upon the independence of liberty?

We can still say that the Englishman's house is his castle, from which he may exclude all except those who are armed with the authority of the law; but it is just the latter class of whom we must beware, since there is an increasing tendency on the part of Parliament to enact that the doors of our dwellings shall be open to the official representatives of the authorities empowered to carry out the intentions of the

Legislature. No doubt in the interests of the community it is necessary that the law should have the right of access even to the private sanctum of the citizen, but let us carefully watch lest the right appertaining to the law is indefinitely extended, lest the sanctity of the home be destroyed, and lest the government of our lives be slowly but surely transferred from the individual to the official, and from the independence of democracy to the servility of bureaucracy.

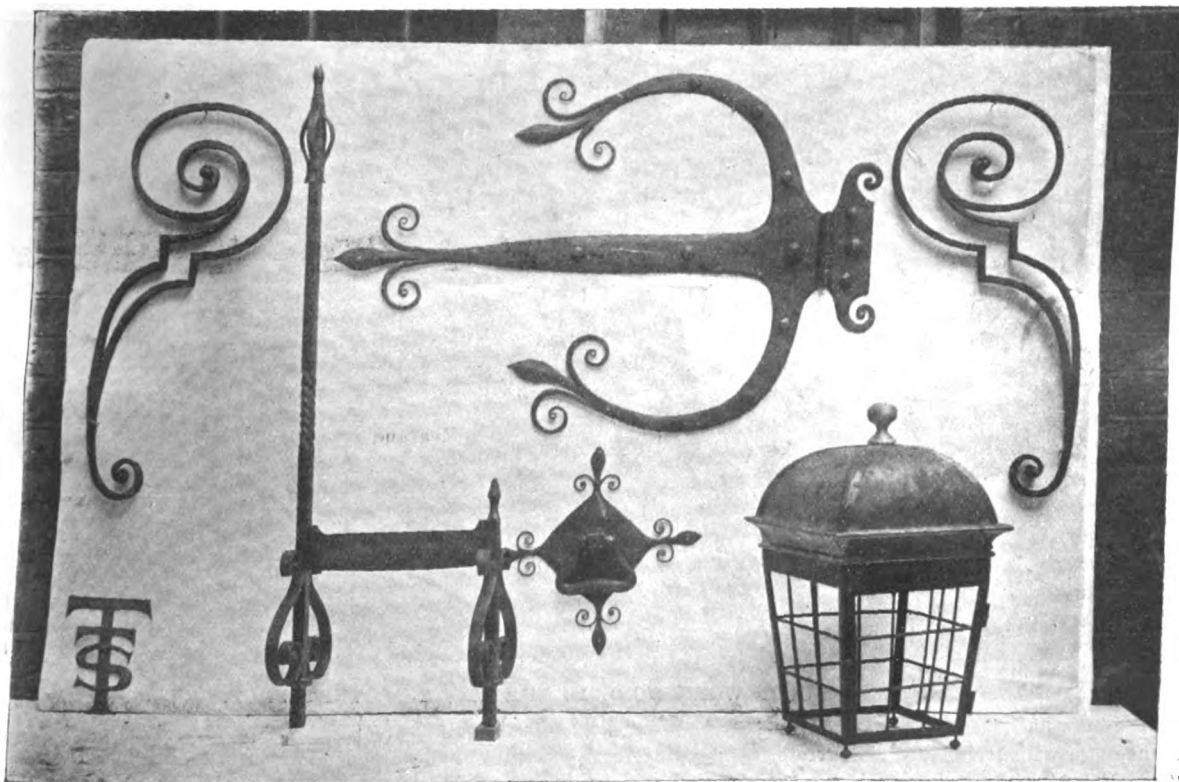
Still greater, however, is the need of watchful attention to the menace of a foe advancing from another quarter—a foe who, if he gain admission to the citadel, will speedily lay it in ruins. I allude to the proposals of the Land Values Group to make land the principal, if not the only, basis of rating and taxation. At present both rates and taxes are raised upon the annual value of land and buildings combined, and the new proposal is to relieve buildings from contribution (upon the ground that they are the product of industry), and to raise the whole amount required upon the basis of the site value of the land alone. Plausible arguments are adduced in its favour to the effect that, from the resulting freedom of buildings from rating, industry would receive a new impetus, that the people at large would benefit, and that no class, not even the landowners, taking them as a whole, would be laid under heavier tribute than at present. How this wonderful thing is to be done I know not. How the huge sum lost by freeing the buildings is to be raised without saddling the land with a much heavier contribution than it now furnishes passes my comprehension. Of course, it cannot be done. The land which is unbuilt on must be taxed more heavily than it is at present, and since the greater

indeed, require convincing proof that the change of the rating basis would not only remove present inequalities, but would also provide substantial advantages to compensate for the inconvenience and hardship which would inevitably accompany the transition. Let us, however, put aside for a moment the economic question, and look at what we find revealed in the evidence given by more than one of the Land Values Group before the Departmental Committee:—

“One object we have in view is so to tax the land as to render it unprofitable to hold as private property.”

So, then, this is the object of the taxation of site values—by means of the valuations obtained under the Finance Act, to tax the land until it is not worth holding, until, indeed, the owners are glad to surrender the property without compensation.

Rome was once saved from a surprise by the cackling of geese; let the similar note of warning uttered before the Departmental Committee warn the landowners of Great Britain of the true intent of these proposals. The admission of the fervent but incautious advocates of land taxation has shown the emptiness of the comforting assurances of the leaders of the movement, and has made it clear that the taxation of the capital value of land is the first step towards land nationalisation—the beginning of the end of private ownership. Let there be no mistake about it. To sanction either by acquiescence or neglect the principle of taxing the capital value of land is to receive within the fortress the Wooden Horse of Troy, to assist in the destruction of the citadel, and to undo the work of twenty centuries of national life and development.



SPECIMENS OF WORK DONE IN THE SMITH'S SHOP.

part by far of such land is agricultural land, the burden must fall heavily upon the farmer. Where, however, the farmer's rent and taxes combined are already as much as the land will bear, the rent must be lowered if the taxes are increased, with the result that the saleable value of the land will be reduced, and with the land will suffer all those who depend thereon.

Some of the land-taxers speak of a threepenny rate, others of 10d. in the £. Do not let us, however, be deceived by these figures. The tax is to be on the capital value, and a threepenny and a tenpenny rate thereon mean respectively a rate of 5s. and 16s. 8d. in the £, while a rate of 1s. would represent 20s. in the £ on the annual value of the site.

One section says that the basis of taxation only will be changed, and that the tax itself will be paid by the same persons as at present, while another section boldly speaks of the site rate being additional to present payments, and as falling on the landowner. It is all vague and undefined, but before approving the economics of the new scheme we should,

THE TRADES TRAINING SCHOOLS

THE report of the judges on the work done at the Trades Training Schools of the Worshipful Companies of Carpenters, Joiners, Painter Stainers, Plaisterers, Tylers and Bricklayers, and Wheelwrights at Great Titchfield Street, London, for the session 1912-13, shows that the good work carried on for many years in training in craftsmanship for several branches of the building trade is being maintained, and is only limited in its sphere of usefulness by the need of increased accommodation.

The reports of the instructors show that in the Carpentry Class the attendance has been well above the average and has been maintained throughout the session. The work in hand and completed consists of a full-size English oak settle, an oak flower tub, a hexagonal turret with bell-shaped roof in oak, quarter full size, an example of half-timbered work in oak and various examples of joints and double curvature, &c.

The Joinery and Handrailing Class this session shows an

increase in numbers, twenty-eight students attending the Joinery Class and ten students receiving instruction in stairbuilding and handrailing.

Again, as in previous years, special attention has been paid to advanced setting out, including double curvature work, and in this section a half-size model of circle on circle frame and fanlight has been completed; other work in hand includes a niche, elliptical and spherical domes, airtight show-case and circular counter. These subjects requiring careful and intricate setting out, which takes some time in the early preparation of the work, accounts for some of the subjects being unfinished.

In the Handrailing Class good work has been carried on, and a completed quarter-size model of geometrical stairs, several examples of wreathed handrails and setting out, &c., are the result.

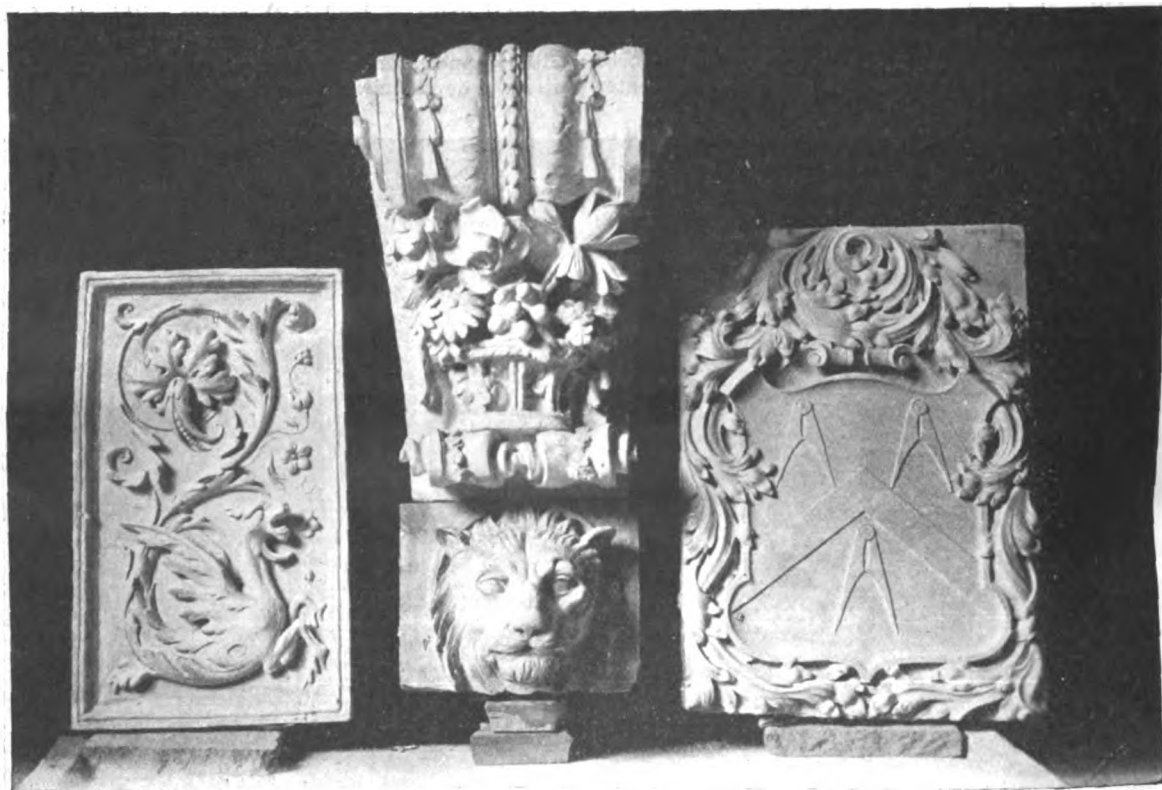
In the Masons' Class the work executed by the students during the past session upholds the high reputation so deservedly held by the schools.

Whilst some of the students have attended for special instruction only, each individual student producing practical work appears to have endeavoured to reach the highest standard of craftsmanship.

The models for the session include top of church tower,

of fibrous plaster, fluted pilaster, panel ceilings, plain column, wall panelling and sundry specimens of fibrous plastic work.

In the Plumbing Class the total number of students enrolled during the session is thirty-eight, and they were entered as follows: For the autumn term, twenty-five; for the winter term, twenty-two; for the spring term, twenty-six. It may be said that the attendance throughout the session has not been as satisfactory as in some of the previous years, but this in a great measure may be accounted for by country work, overtime, and illness. In reference to the specimens of works executed throughout the session, these consist of four stacks of 4-in. lead soil and drain ventilation pipes, complete with traps, branch pipes, and anti-syphonage pipes, gun-metal connectors, thimbles, and ferrules for connecting to iron and stoneware drain pipes; three stacks of lead waste pipes, complete with their branch pipes, anti-syphonage, and traps and solder joints; model lead flats, covered with milled sheet lead; numerous specimens of milled lead bossings, in breaks, angles, roll ends, skylight coverings, and flashings and finial; cast-lead hand-made rain-water pipes and ornamental cast-lead cisterns, connected with burnt lead seams by the oxygen-hydrogen process; small model dome, covered with sheet aluminium,



SPECIMENS OF WORK DONE IN THE STONE-CARVER'S SHOP.

square on plan, with foliated angle turrets, supporting four flying arches, carrying a central spire; Gothic font with hexagonal bowl carried on centre piece, with detached columns, caps and bases, set on steps, &c., the sides of bowl, enriched with sunk cusped foliated panelling, divided at angles by three-quarter attached columns, with caps and bases worked on; a well-proportioned sun-dial, surfaces mainly rubbed to a fine finish, with some of the salient features slightly enriched; a Gothic covered way, with traceried window openings, canopied buttresses and stone roof, leading to cloister garth over a bridge; polished Sicilian marble for letter-cutting; various specimens of turned work for instruction in Portland, Ketton, Caen stone, marble, &c.

In the Painters' Class the students' attention and activities have been very largely directed to those preliminary processes so essential in the training of the house-painter, a practical inclusive knowledge of which is of value to the student. The attendances have been very good; diligence and application have been shown by the students in following the instructions of the class.

In the Plasterers' Class the attendance of the students has been very good. The majority of them are juniors. Several good pieces of work have been executed, consisting

with welted seams. The output of finished practical work this session is not so large as in previous years. This may be said to be due to the major number of the younger students attending for practice work only, and partly on this account, too, the model systems for the domestic hot water and heating have not been put in hand, as was in contemplation to be fixed in the last term.

In the Smiths' Class the attendances have been very good and several good pieces of work have been completed, including a pair of entrance gates and lamp for overthrow, which was made the previous session. A great deal of time has been spent with the young students on practice work.

In the Modelling, Sculpture, and Stone-carving Class the students' work for the past session is of a very representative character, and consists of carving in stone and marble, and also plaster decorative work. The men are keen and regular in class attendance, which has enabled them to complete the various important architectural features which have been exhibited.

In the Life Class great advance has been made by some of the older students, in two cases enabling them to occupy positions as professional modellers (unfortunately out of London), which fact has prevented their attendance at the classes. The work of the session has again been confined to

a series of short time studies from life, which system the director and instructor consider the most beneficial, giving the student great opportunity for fairly handling the material and to study the figure in many poses.

The drawing classes and lectures in connection with the Tylers' and Bricklayers' Class have been exceedingly well attended, many of the students coming long distances to take advantage of the facilities and opportunities placed at their disposal. The drawings submitted for inspection go to show the zealous and painstaking manner in which the students pursue their studies, and the full-sized models in the workshops speak for themselves of the diligence and enthusiasm of the students in the higher branches of their craft. The exhibits show that the high standard of craftsmanship of previous years has been maintained, if not exceeded, and include a circle on circle moulded arched window opening, an octagonal ornamental pedestal, a circular sun-dial, an elliptical bull's-eye, moulded plinths, and moulded caps and cornice; an ornamental window opening, including a moulded camber arch, moulded reveals and moulded cornice; Gothic window and moulded string, a circular column with entasis moulded base and cap, ornamental balustrades, and moulded semi-circular, segmental, elliptical, and Gothic arches, &c.

the following systems: Wood-casing, screwed steel tubes, "Stannos" and "Kalkos."

In presenting the prizes at the last distribution to those who had received awards, Lord Howard de Walden said: Worshipful Master, Wardens, Ladies and Gentlemen,—I feel a certain amount of diffidence in addressing you, as I have already heard several gentlemen who are technically able to speak on the subject address you, and I know that if there is one thing that is more terrible than making speeches, it is having to listen to them. I have suffered in both ways, and I assure you, as parents always assure their children, that it hurts me as much as it does you.

I have always had a certain distaste for public speaking, but I am very pleased to come on this occasion because the work of these Trades Training Schools was a perfect revelation to an ordinary member of the general public like myself. I had no idea that such a thing existed at all, not the faintest.

I joined in the general "grouse" of the rest of the public about the decay of craftsmanship, and what a dreadful thing it was; and I had not the least notion that there was anything going on which was likely in any way to retrieve the standard of craftsmanship, so that you can imagine how agreeably surprised I was to find that there are real crafts-



SPECIMENS OF WORK DONE IN THE WOOD-CARVER'S SHOP.

In the Wheelwrights' Class the number of students enrolled was higher than for some time past, but the attendance has not been maintained owing to a number of them working overtime. At the same time there are some creditable pieces of work finished, and others not quite completed.

In the Wood-carving Class the number of students who remained through the course has been quite up to the average, and in the case of wood-carving there is more work this session than during several sessions past. At the close of the first term three students left, taking with them two or three large drawings of French ornaments, and did not again enter. Notwithstanding, there are again some very good drawings for exhibition, some of which are to go for competition elsewhere, and but one model for a panel of Louis XIV. French ornament; other models there were, but abandoned. At the autumn term nineteen students entered and a like number in the winter term, with seventeen in the spring term, making during the session on instruction nights 975 attendances. There was one senior L.C.C. scholarship.

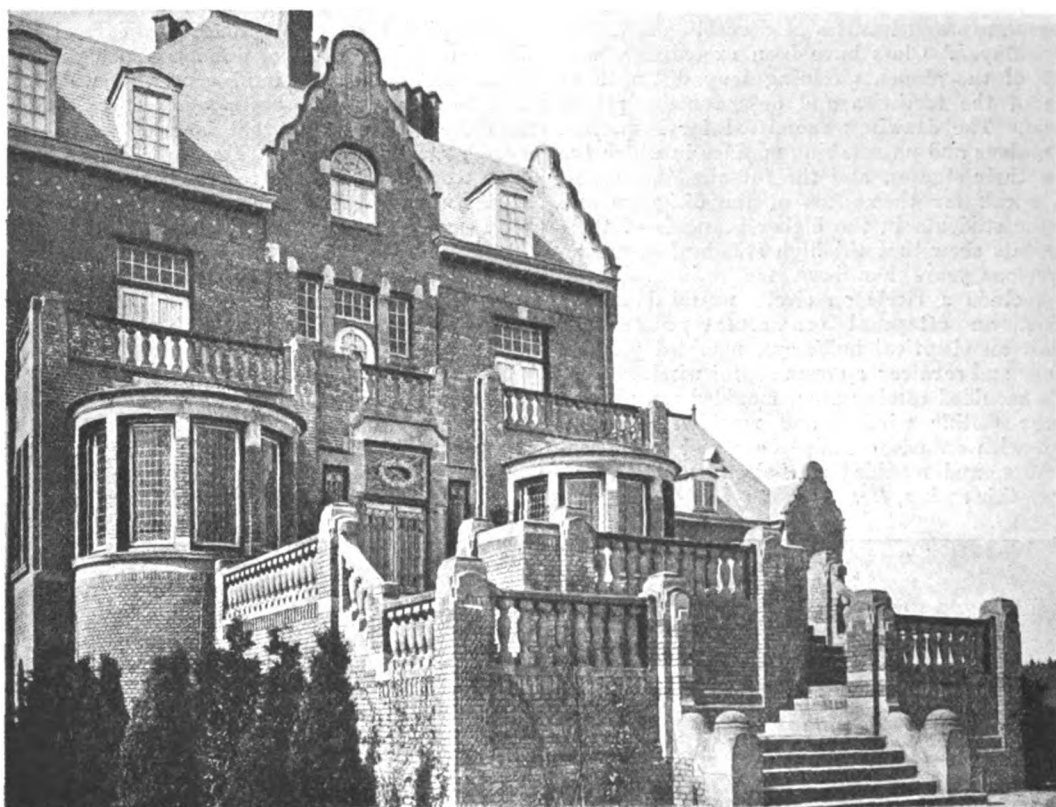
In the Electric Wiremen's Class the number of students enrolled was as high as in previous years, and the attendance has been very satisfactory and above the average for past years. The students have shown a very keen interest in the work set them to do, and work has been carried out in

men really learning their own job still in the world, especially under the ægis of the City Companies, who are the real people under whose shadow craftsmanship ought to flourish, as they are the direct successors of the Mediæval Guilds.

I can say very little of this, you know, from my own point of view, but one can just give you an instance of the curious state of mind one gets into just in the ordinary way. For instance, a little time since I was doing a certain amount of restoration to an old keep, and I remember my secretary, who is a bit of a surveyor himself by trade, dashing in and saying in a state of great excitement, "Do you know what I have found amongst these people here?" and I said, "No." He said, "There is a carpenter," and I said, "Nonsense!"

Well, I mean to say that I have got to that condition of having it so rubbed into me in places in the country by people bemoaning themselves that they cannot even find a man to make a gate, that one does really get into that condition when one is surprised at finding a real carpenter. The same thing occurred a little time afterwards when I happened to go round Denny's Shipbuilding Works. When we got to the smiths' department my guide sighed heavily and said, "You know, I do not know what is going to happen. We must have smiths to work in this particular department for shaping, and I do not know where they are to come from."

MODERN EUROPEAN ARCHITECTURE.
HOLLAND.



[From *Het Huize*.

'A COUNTRY HOUSE, "DE HOOGE VUURSCH," AT BAARN.—GARDEN FRONT AND TERRACE.

We cannot find them any more." I said, "Well, how do you get them?" and he said, "Well, we ransack all the villages." I said, "From my point of view I wish to heaven you would leave the villages alone!" That, of course, is only one's individual point of view; but one suddenly comes to the conclusion that it is not altogether the failing or the absence of craftsmanship; there is also a complete absence amongst most of us of the power to appreciate it when we see it.

I would not guarantee that I am by any means a judge of really good work in any of these departments of the building trade; and I think I could associate myself with probably some 30 millions of the populace in saying that. You see, the two standards sink together. If there are no craftsmen to show us good craftsmanship, we shall forget what really fine work is like, and consequently our own standard of ideas falls just as badly.

Consequently, it is a great pleasure to me to discover that there is a place where people are actually keeping up a high standard of work, because, after all, I do not think that there is any brighter title in the world than to be a craftsman. I cannot think of any other; I cannot think of any possible thing which makes you respect a man more than to know that he knows whatever his work is, and that he knows it thoroughly. I, of course, suffer as we all do from little mistaken notions of education, having gone through a course myself where you are taught to do nothing at all, and not even to do that very well.

Suffering under that, I have a still more intense regard for the man who has learned one thing absolutely thoroughly. For him I have the most extraordinary veneration. I can hardly be parted from a really good carpenter, because I say it is really the exact opposite of everything that I have been taught to do. I have a profound, an almost savage regard for him. Consequently, although I shall never deserve it myself, I think the finest epitaph anybody could have is, "He knew his job!"

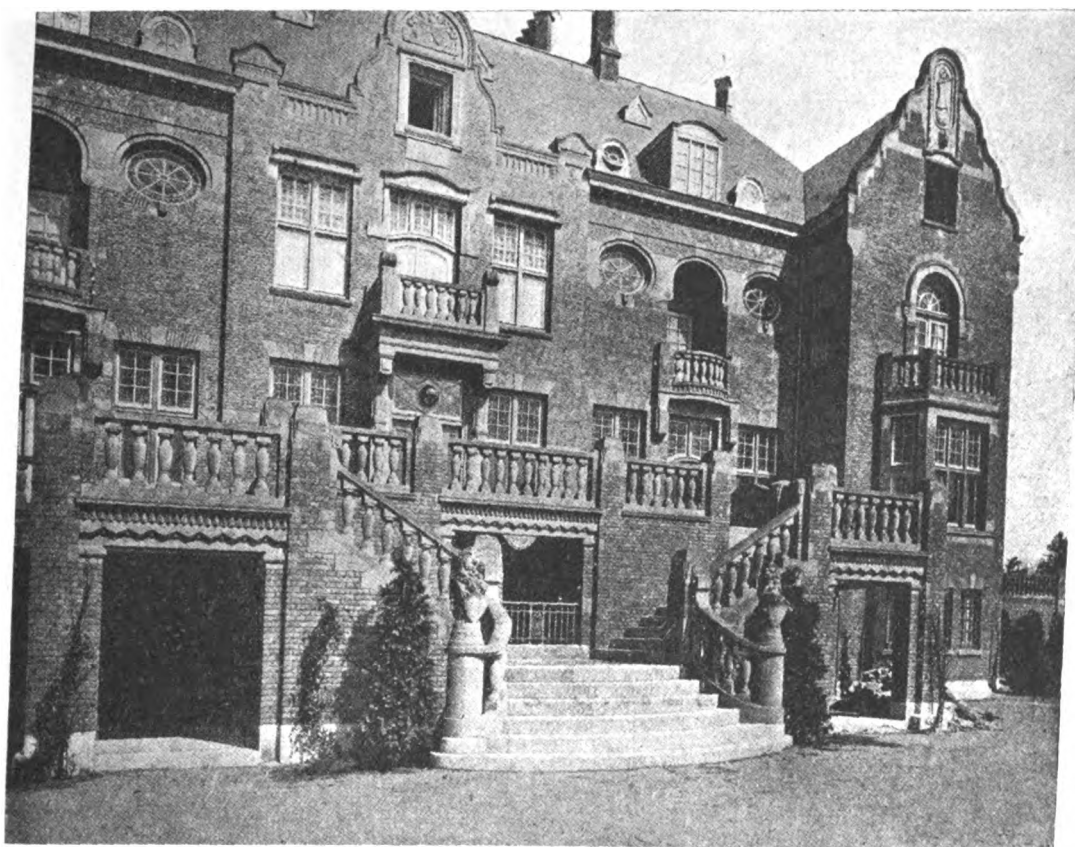
In replying to a vote of thanks proposed by Mr. H. Halifax Wells, C.C., Master of the Joiners' Company, and seconded by Mr. J. C. Nicholson, Upper Warden of the Painters' Company, Lord Howard de Walden said:

Worshipful Master, Ladies and Gentlemen,—Just before rising to thank you something flashed into my mind which happened the other day and which will explain what I should have said to you a great deal better than the way

I put it. I was talking to two friends of mine, one an artist and the other a novelist of some repute. We happened to be talking about Britain, and supposing we came back, like Macaulay's New Zealander, in a few thousand years, what we should be able to say about it—something it really had which was absolutely distinctive. We could not get it for a long time, until one of us—it was not myself—hit upon it in a sudden brief way, and it was this: "Whatever else Britain had, she had a domestic architecture which was like nobody else's in her own particular way." I think that was not very far wrong. Of all things we ought to be proud of in this country, I believe our domestic architecture will more than anything else outlive most of the things we put value on at the present time. Anyhow, as your Chairman proposed to drag in ancestors of mine, I want to put the case of another ancestor, which will show you that some of the things we complain of to-day are not altogether the growth of this present age. The first Lord Howard de Walden had the fatal misfortune to belong to that period when people first went to Italy, and came back from Italy as proud as a peacock and full of ideas. He tore down the existing Tudor house that was standing, and he put up on its site, with the assistance of an Italian architect and Italian workmen, a very fine imitation of an Italian palazzo; and the birds of the air came and ate it! The stone is so soft that I myself have seen sparrows carrying pieces of the house away. It is easier to get than the ordinary grit off the gravel path; so that you see even the noble art of jerry building has a longish history. It is not only yesterday that we started dropping the solid old things which had got a very proper character, and putting up pretentious imitations of somebody else's work. I just thought that as it happened to be one of my predecessors who was guilty of one of the first specimens of really wicked jerry building, I might just mention it to you. It was apparently one of the cases of original sin. I hope you will not mind my having kept you to tell you that, and I thank you very much for having listened to me so patiently.

MR. G. L. PEPLER, architect, 4 Arundel Street, Strand, W.C., has been asked by the Hunslet Rural District Council to prepare a town-planning scheme for Templenewsam, at an inclusive fee of 120 guineas.

MODERN EUROPEAN ARCHITECTURE.
HOLLAND.



[From *Het Huis*

A COUNTRY HOUSE, "DE HOOGE VUURSCH," AT BAARN.—ENTRANCE FRONT.

HOUSE OF COMMONS VENTILATION.

In July last a Select Committee was appointed by the House of Commons to inquire what changes, if any, in the existing system of heating and ventilation of the House of Commons might be desirable and practicable. Only one witness, Mr. Arthur P. Patey, M.I.M.E., M.I.E.E., had been examined when the Committee decided to report the evidence to the House, with a recommendation that the inquiry should be continued next Session.

The minutes of Mr. Patey's evidence have just been published. Having been for five or six years resident engineer to the Houses of Parliament and as a first-class assistant engineer to the Office of Works, Mr. Patey was asked to give some purely descriptive evidence in regard to the system of ventilation now in use in the House.

The system, he told the Committee, is the plenum system, coupled with exhaust, sometimes called a balanced system, a condition of working being that the inflow of air to the Debating Chamber is slightly in excess of that extracted.

The air intakes are three in number, and are situated at the basement level on the east side of the building facing the river. At the initial point of air entry are fixed "tempering coils" or radiators for the purpose of raising the temperature of the air in cold weather, and so preventing the water from being frozen on the water screens placed across the centre of these chambers. The air is drawn by the input fan through these water screens, which consist of panels of copper gauze twenty meshes to the linear inch, supported on framework fixed vertically across the whole sectional area of each chamber. Immediately in front of each screen are water sprays of the impingement type, which keep the screens continually moist; the waste water drains to a sump, or underground tank, and by an electric pump, automatically controlled, is used again for boiler-feed purposes. The effect of this screen is to remove a little over 60 per cent. of the bacteria from the Terrace air, to increase the humidity, to wash out a large proportion of the fog and to give a marked cooling effect.

The air supply then passes along a glazed tiled duct or passage about 100 feet in length to the "input fan." This is of the centrifugal cased type, having an 8-foot diameter runner and belt driven by an electric motor of 25 brake

horse-power. The speed of the fan can be raised, by graduations of one revolution, from 100 to 190 revolutions per minute, the volume of cubic feet of air propelled per minute being from 20,000 to 60,000 cubic feet.

Between the fan point and water screen chambers are fixed special air-tight double doors to form air locks and prevent side leakage of air of an undesirable character from the basement corridors communicating with this portion of the airway.

From fan discharge the air travels horizontally along a further length of passage, the floor of which is tiled, and then rises vertically through the heating and equalising chambers, the latter being directly under the floor of the Debating Chamber. The fog filter is of V construction, and fixed in a separate independent vault running in the same direction as the Debating Chamber. In time of fog all the air is by-passed from the main air passage to the filter by means of a special diverting screen, which is also airtight in character. Arranged on either side of the V in panel form are the movable cotton-wool baskets, having a total wool thickness of four inches.

The heating chamber is practically of the same floor area as the Debating Chamber. The radiators, of the double-column type and thirty-nine in number, are separately controlled from within the heating chamber, and are distributed in the centre and sides over the whole area. The system of heating is by the Warren-Webster atmosphere low-pressure steam, which allows of a low temperature on the radiators.

The air entry to the equalising chamber is by twelve circular cast-iron gratings at the sides and ends and three large oblong gratings in the centre. As the name implies, the air is here made equable in velocity and temperature. The regulation of the whole system is from this point. Thermometers for recording the air temperatures are hung immediately over each air inlet into the equalising chamber, and these are continually checked by the ventilation attendant, who is in constant attendance in this chamber during the sittings of the House.

The equalising chamber is immediately over the heating chamber, and of the same size. And the gratings through which the air passes to the equalising chamber are on the roof of the heating chamber.

MODERN EUROPEAN ARCHITECTURE.
HOLLAND.

[From *Het Huis*.]
A COUNTRY HOUSE, "DE HOOGE VUURSCHÉ," AT BAARN.—THE FRONT ENTRANCE AND TERRACE.

The height of the equalising chamber varies; at its lowest point in the centre it is about 6 feet.

From the equalising chamber the air enters the Debating Chamber by the perforated centre and cross-gangways covered with string matting, and by the "valance" and "slit" inlets which extend the whole length of all the benches. In addition, air is also free to pass laterally through five openings or "port-holes," in each of the side walls of the equalising chamber into the space beneath the floor of the Division Lobby, and which provides the supply for the Division Lobbies, and by two rectangular openings in those walls above the floor of the lobbies.

The "valance" inlet is behind the heels of members, and the "slit" inlet is under the back of the oak bench—in other words, in front of their toes. They are both "slit" inlets really, but one is covered by a "valance," a little curtain, while the other is directly open to view. The inlets vary in width from $1\frac{1}{2}$ to 3 inches.

Now, as regards outflow, the vitiated air is extracted through the slightly raised panels in the ceiling of the Debating Chamber by a similar fan to the input fan in the basement. This fan is fixed over the Members' Lobby and discharges its air into a vertical shaft about 70 feet in height and above the roof of the building. The top of the tower is practically about 50 or 60 feet above the roof. The speed of

this fan can be regulated in the same manner as the input fan. The outflow of air is further controlled by an hydraulically operated "shutter valve," through which all air extracted from the Debating Chamber must pass.

The object of that is to regulate the amount of air extracted from the Debating Chamber as compared with the amount of air extracted from the Division Lobbies and also the Members' Lobby. There is a shaft which is drawn on by the fan which provides the extraction of vitiated air from the Members' Reading and Tea Rooms. It is a question of adjustment really as to the amount of air to be extracted; the main objective is to get a balance in the Debating Chamber between the amount of air extracted and the input.

As regards gallery ventilation, a fan capable of discharging 10,000 cubic feet of air per minute is fixed in a chamber which is a continuation of the one where the air takes the vertical flow from the basement.

The air is first warmed by tubular heaters—which can be by-passed in summer—and is there ozonised by an "ozoniser" plant situated in this chamber, and after passing through the fan it is discharged vertically to the rising shafts in the side and end walls of the equalising chamber. There is a rectangular constructed horizontal duct running round the side walls of the equalising chamber,

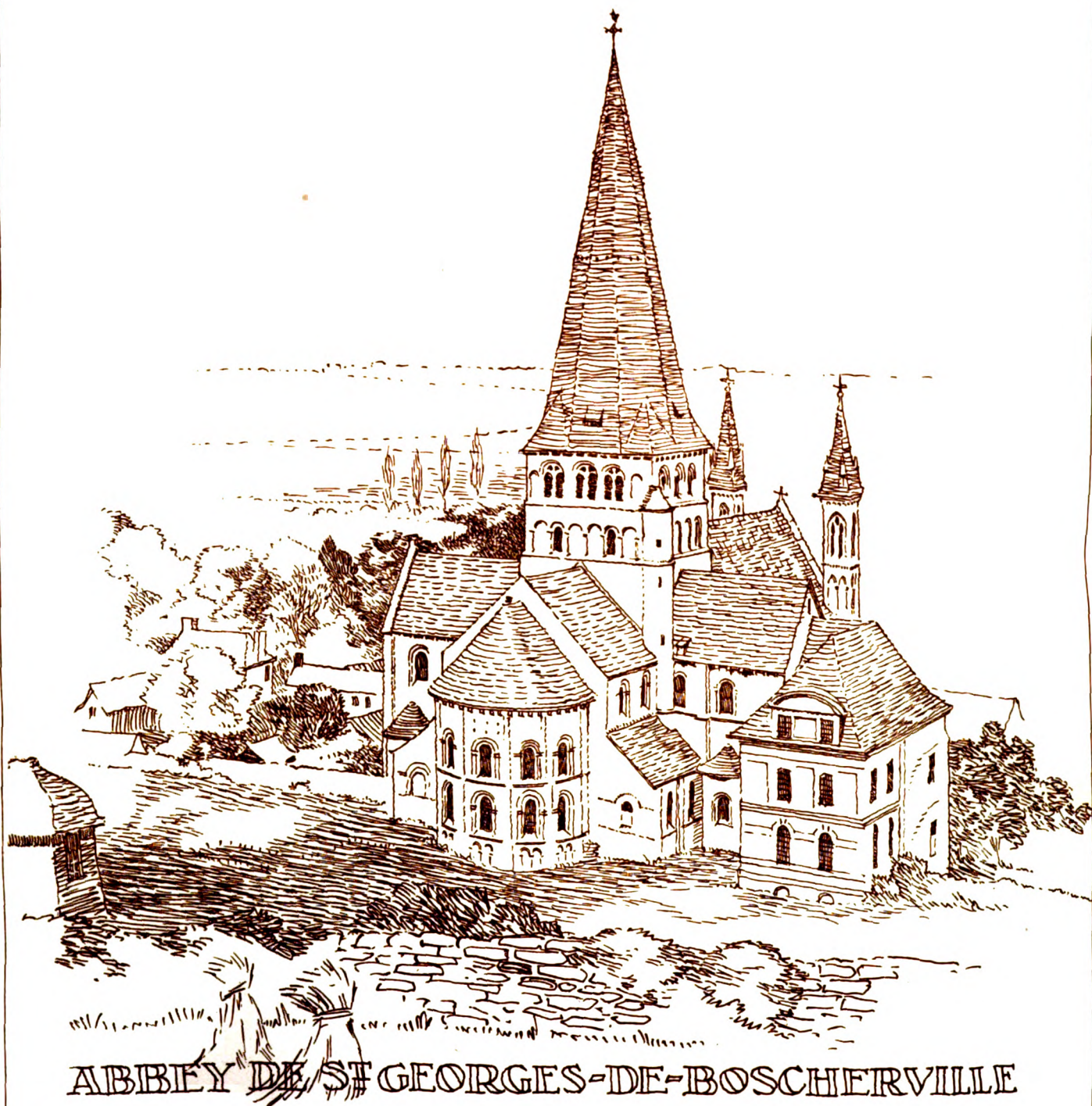


PHOTO-LITHO. SPRAGUE & CO. LTD. 69 & 70 DEAN STREET, BOND. W.

SKETCHES MADE ON THE ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.

BY MR. L. SUTTON WOOD.

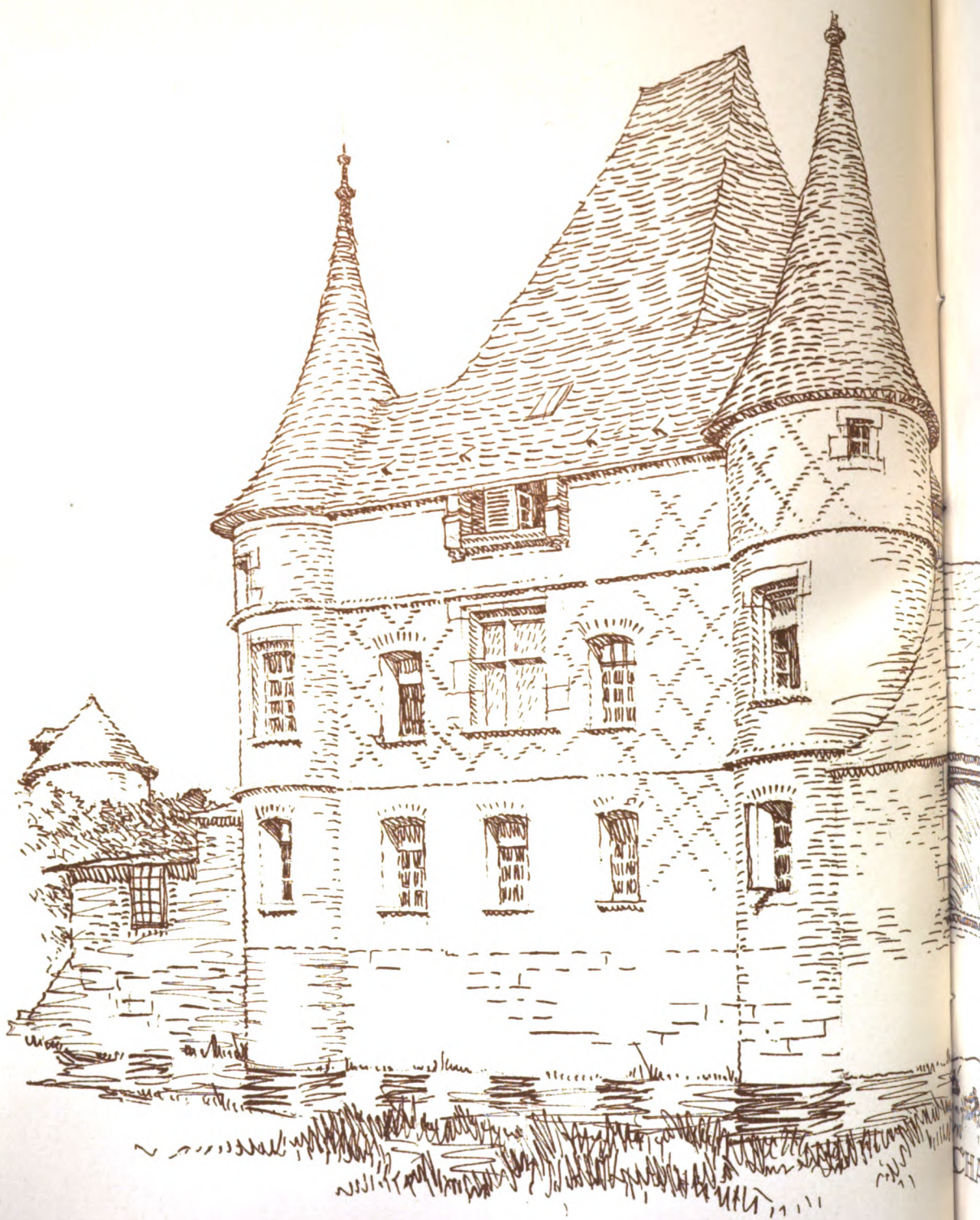
CHATEAU
CAILLY.
END PAVILION



PHOTO-LITHO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

SKETCHES MADE ON THE ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.

BY MR. L. SUTTON WOOD.



SKETCHES MADE ON THE ARCHITECTURAL SOCIETY

BY Mr. L. TON

Sept 5th 1913.

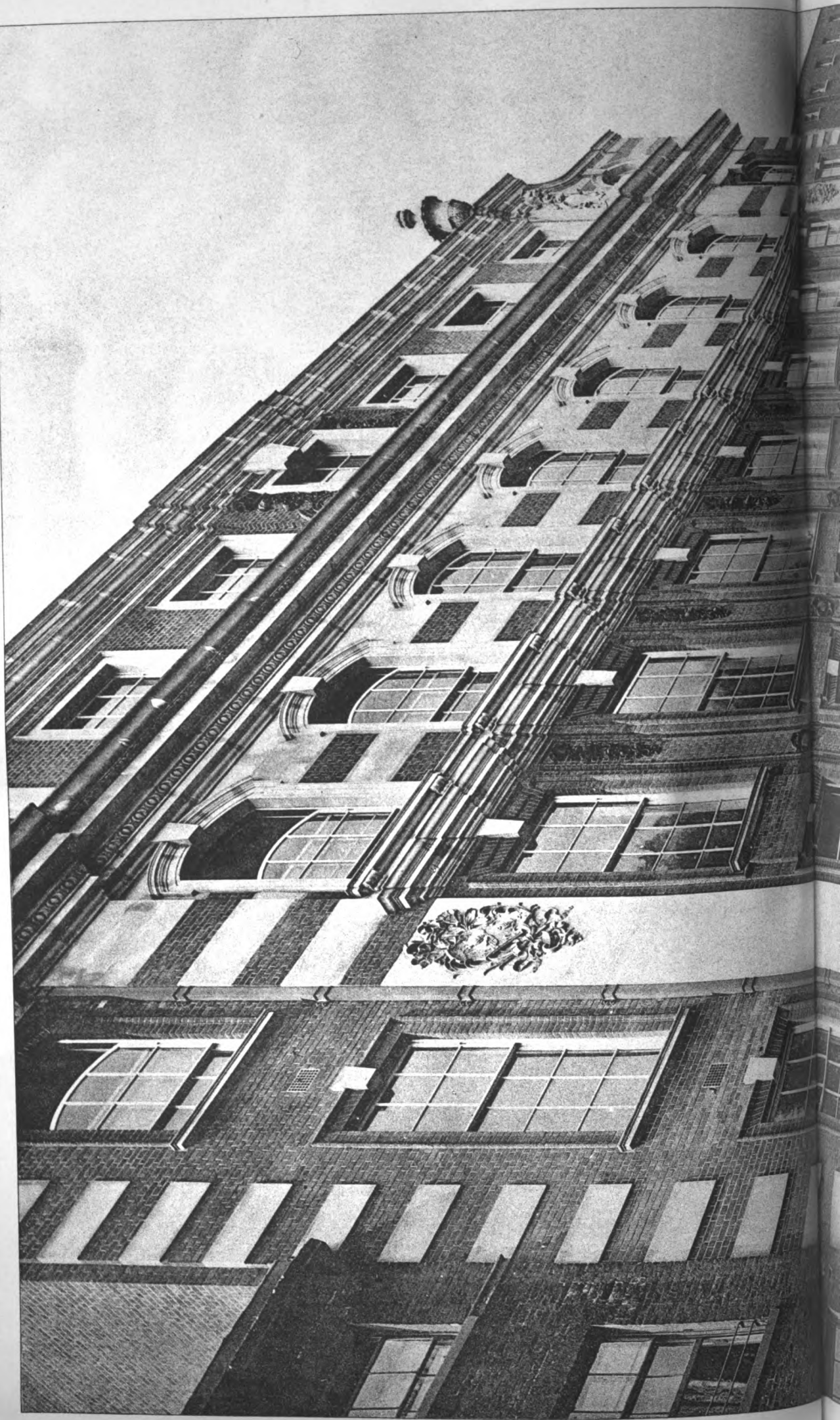


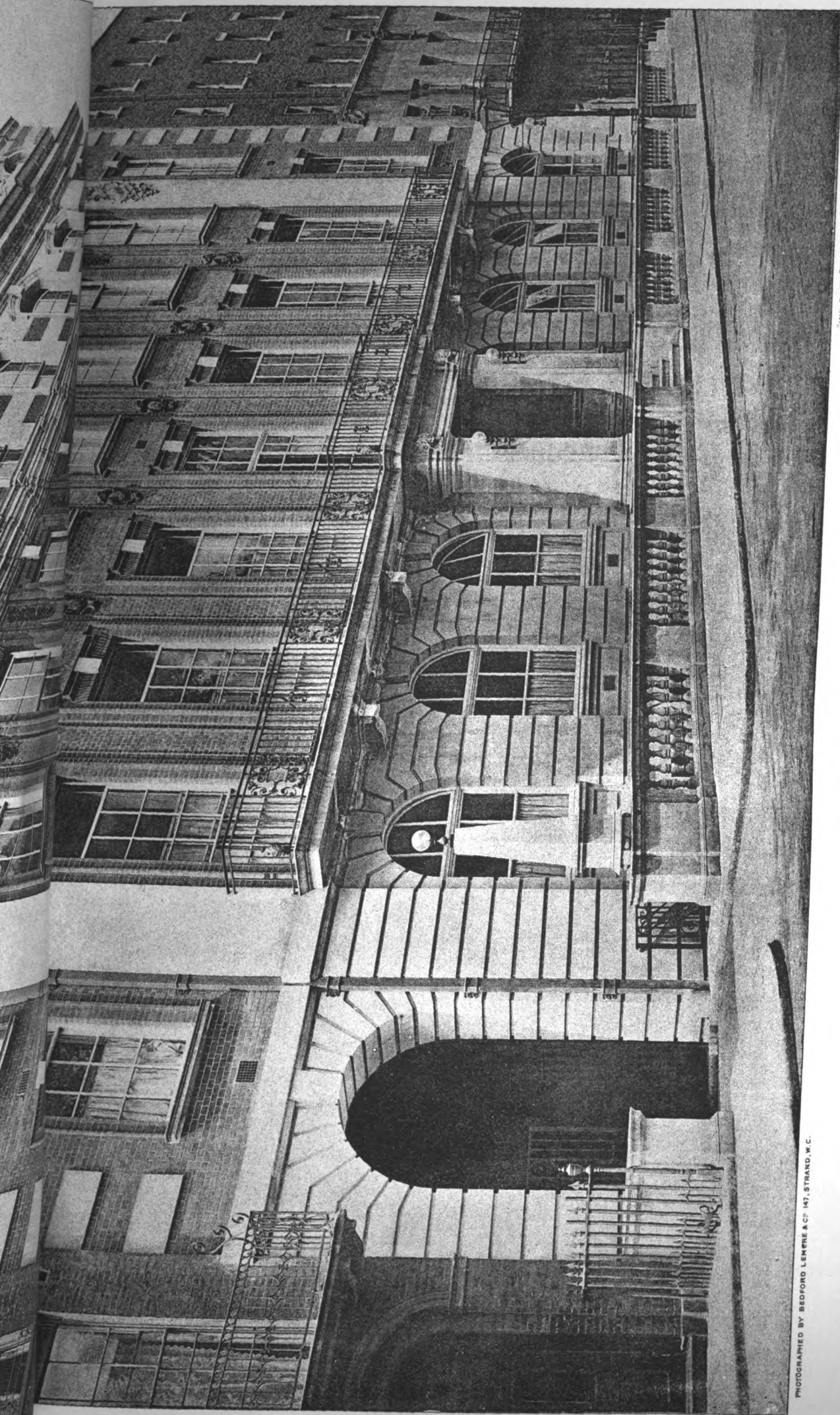
CHATEAU AT FONTAINE LE BOVRG.

PHOTO-LITHO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, BOMBAY

EXCURSION TO NORMANDY, 1913.
ON WOOD.

The Architect, Sept. 5th 1913.

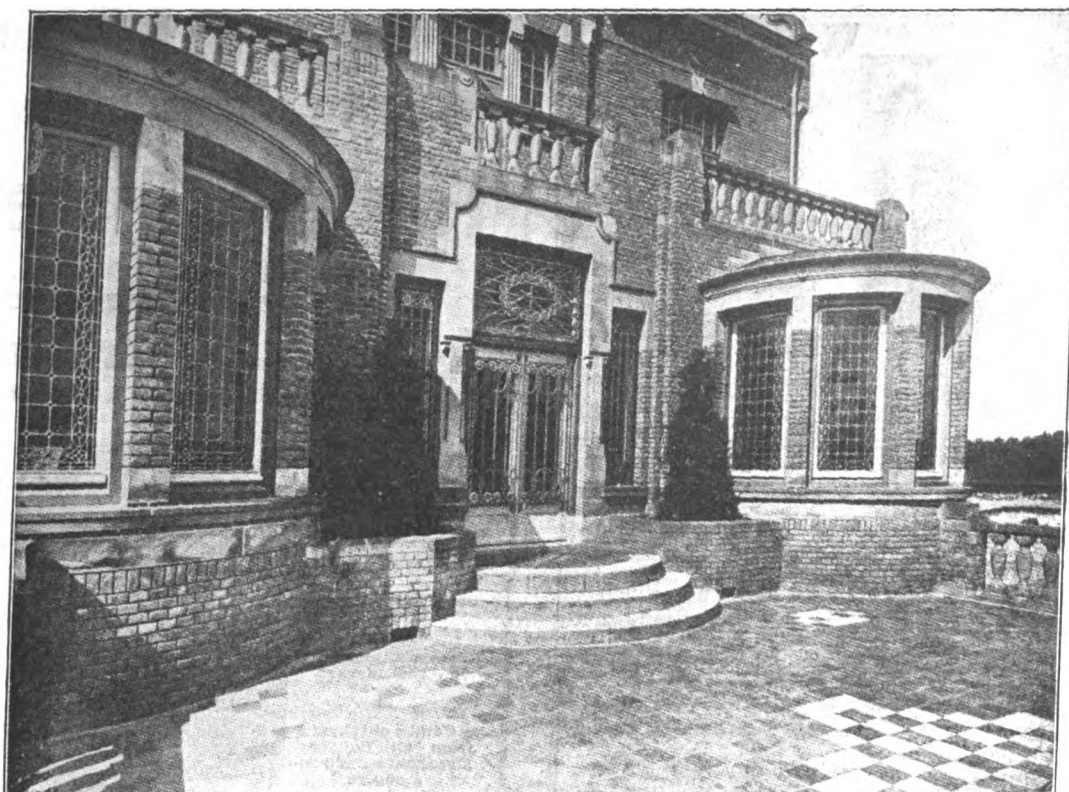




PHOTOGRAPHED BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

"INK-PHOTO" SPRAGUE & CO. L79 68 & 70, DEAN STREET, SOHO, W.

ROYAL COLLEGE OF SURGEONS, QUEEN'S SQUARE.
MR. A. N. PRENTICE, F.R.I.B.A., Architect.

MODERN EUROPEAN ARCHITECTURE.
HOLLAND.(From *Het Huis*.)

A COUNTRY HOUSE, "DE HOOGHE VUURSCHIE," AT BAARN.—GARDEN ENTRANCE AND TERRACE.

and from this duct there are vertical shafts rising to the galleries, communicating with the velocity-reducing chambers, extending under the benches of the various galleries, where the velocity is lowered in order to prevent draughts.

Mr. Patey was examined on the subject of the ozone, which is artificially manufactured by electricity. The plan was installed tentatively less than a year ago. At present only the Members' Gallery, Strangers' Gallery, and the Press Gallery get the benefit of it.

The question of ozonised air came before the Committee upon Ventilation in 1902, and it was discussed, and there was a gentleman who brought up an ozoniser in the room before the Committee which was sufficient to choke the Committee off the idea altogether. They were given too strong a dose.

The Committee does not appear to have reported in favour of ozonisation. There is a difference of medical opinion as to the question whether there is any value in ozonised air; some doctors seem to think that some of these ozonisers produce nitrous oxide. But these ozonisers have been perfected very much since that time, and it is a matter now for consideration and evidence whether ozonisation would be of any value.

THE SOCIETY OF ENGINEERS.

MEMBERS of the Society of Engineers (Incorporated) paid a visit, on the 2nd inst., to H.M. New Stationery Office and H.M.O.W. Stores now in course of construction at Stamford Street, S.E. Permission to inspect the works had been kindly given by Mr. R. J. Allison, A.R.I.B.A., who is responsible for the design of the building.

The new structure will be in two blocks, the larger in Stamford Street being the warehouse, and the smaller one facing Waterloo Road being the office portion. A short street, Bazon Street (formerly Bond Street) separates the two portions, but they will be connected from the level of the first floor and upwards by arched beams of 28 feet span, carrying a building 40 feet wide and forming additional space for the offices.

The following gives the general dimensions: Length of frontage to Stamford Street, 323 feet; length of frontage to Cornwall Road, 189 feet; length of frontage to Doon

Street, 377 feet; length of frontage to Waterloo Road, 106 feet; average height of main fronts above footpath, 77 feet.

Including ground floor and basement there will be seven floors in the warehouse and eight floors in the office block, including sub-ground and basement. The height, generally, from floor to floor will be 11 feet in the office block and 10 feet 6 inches in the warehouse. The total floor area to be provided is 480,000 superficial feet, or a total of, roughly, 11 acres.

Internal areas, of which there will be two in the office block and three in the warehouse, will be provided to light the interior parts of the building. The windows of the warehouse will be provided with steel sashes. The working of the warehouse will be carried on mainly by means of two electric lifts for goods at the platforms of the loading yards in Doon Street. There are also two lifts for passengers, one for the offices and one for the warehouse.

For the office staff a dining-room 55 feet by 23 feet will be provided on the top floor of the office building, together with kitchens, &c., specially fitted with steam and other cooking arrangements. In connection with this part a goods lift is provided for stores and for service at all floors from basement.

The drains inside the building will be of cast iron pipes laid under basement floor, and a complete system of heating by hot water under forced circulation will be provided.

The reinforced concrete work is being carried out on the Hennibique system. The following independent floor loads are allowed for: In warehouse, ground floor, 3 cwt. per square foot; in warehouse, other floors, 2½ cwt. per square foot; in offices, all floors, 100 lb. per square foot; in roofs, 65 lb. per square foot.

The floor slabs are 3½ inches thick in warehouse, and 3 inches thick in offices, and external walls generally are 4 inches and 6 inches thick. The boiler chimney will be also of reinforced concrete, 4 feet 3 inches square inside, 110 feet in height, with sides 7 inches thick at bottom and 5 inches thick at top. It will be lined throughout with firebrick set 3 inches clear of sides and built in sections supported by corbelling.

All columns have octagonal bases designed to distribute a pressure not exceeding 3 tons per square foot on the foundation. The front of office block, facing Waterloo Road,



Stained Glass Windows & Leaded Glazing

Specially designed in old
Colourings, to include
Armorial Bearings, &c.,
if desired.

Estimates and designs
submitted free for all
kinds of work, together
with testimonials show-
ing that work of highest
grade may be relied
upon.

Andrew Stoddart

The Studio, 15 Long Row,
Telephone: No. 261 Y.
Nottingham.

(3)



In the Summer Time

smoky chimneys are not much
in evidence—but it is the best
time to fix Sankey's Down-
Draught Preventing Pot. This
will stop the trouble when the
cold and windy weather returns.

Have you had our Booklet on
Down-Draught? You will find
it interesting.

J. H. Sankey & Son,

HEAD OFFICE: **Ltd.**

EST. 1857.

Essex Wharf, Canning Town, London, E.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved HOT WATER TANKS
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

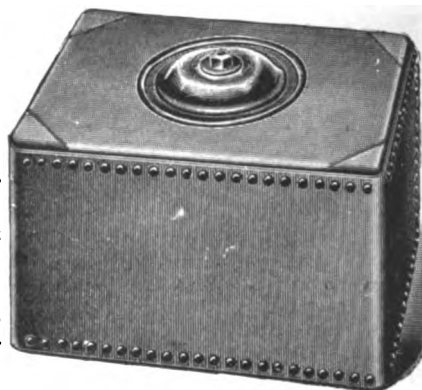
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders,
Merchants and Iron-
mongers.



**IRON KECS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**

THE WALL-PAPER MANUFACTURERS LTD. "Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2731 Gerrard.

Telegrams {"Anaglypta, London."
"Anaglypta, Darwen."}

LINCRUSTA-WALTON, CAMÉOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 8769 Gerrard.

Telegrams: "Lincrusta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East.

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above

KINNEAR PATENT STEEL ROLLING SHUTTERS



are adapted to the requirements of all
classes of buildings.

**They are FIREPROOF,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.**

Thousands of these shutters are in use
in all parts of the world.

Arthur L. Gibson & Co.,

**Radnor Works,
Strawberry Vale,
TWICKENHAM.**

MANCHESTER:
33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:
79 West Regent Street.

WESTERN RAILWAY—LAMBETH GOODS DEPOT.

Shutters, 19 ft. high by 23 ft. 9 in. wide.

will be of Portland stone carried by the reinforced concrete columns and beams, mainly at level of sub-ground floor. The building has been designed by, and is being carried out under the supervision of, Mr. R. J. Allison, A.R.I.B.A. The general contractors for the whole of the work are Messrs. Perry & Co. (Bow), Ltd.

A GEOMETRICAL SKETCH OF ST. SOPHIA.

St. SOPHIA (Holy Wisdom) and St. Eirene (Holy Peace) are the dedications of two unique churches, both at Constantinople. The latter is the subject of a sumptuous volume just published by Frowde. The following may be taken as a geometrical sketch of St. Sophia. The church was dedicated by the Emperor Justinian on December 26, 537, the architects being Anthemius of Tralles and Isidorus of Miletus.

Irregularities in the existing massive masonry render precision in the following (internal) measurements unattainable. The area is mentioned as ten times that of the Temple at Jerusalem.

The church is nearly a square of 250 feet, and the nave of about 200 feet by 100 feet is central, thus leaving a processional space or ambulatory round it. Inner and outer vestibules, the familiar narthex of a Greek church, form a west side to the square. Central to the nave is the dome, built after an earthquake in 558, having a diameter of 108 feet. Four piers rise about 80 feet, and develop into groined spandrels enclosing four semicircular arches 48 feet high, and forming a circular foundation for the dome proper, which rises another 48 feet, thus giving a height from floor to crown of 179 feet. The arches have similar diameters to that of the dome they carry. The circle is obviously one which no thrust would burst; indeed, the dome would fall first, and this alas! it may do.

Half a coconut will make a good model. Saw off four sides, making four legs and four semicircular arches (108 feet by 48 feet). Saw off the top just above the arches. This piece should represent the dome, which has about the same span and height as the four arches which carry it. The four legs are supposed to rest on the four piers. Two of the pieces cut off the coconut may almost represent the half-dome vaults which complete the roof of the nave on the east and west of the dome respectively, forming also flying buttresses on those sides. Each of these vaults is supported by two massive piers, giving a total support of eight piers, the whole being admirably strengthened by the great enclosing wall. The four arches are filled with perpendicular walling and windows. The dome is stiffened with forty ribs, between the bases of which are as many windows, giving further light.

The Moslem advance on Christendom took geographically somewhat the form of a crescent, its points 700 miles apart, and divided by 700 or more years in time. It receded from Europe in the west (1492), just as it was advancing in the east. Embracing the Mediterranean, this crescent reached Tours under the Arabs, to be beaten by Charles Martel in 732, and Vienna under the Turks, to be beaten by John Sobieski in 1529. The Turks entered Europe at Gallipoli in 1355, taking Constantinople, and killing the thirteenth Constantine in 1453. Now in 1913 the remnant of the eastern horn of the crescent is still awaiting its final determination.

NOTES ON BOOKS.

"The New English System of Money, Weights and Measures, and of Arithmetic." Devised and compiled by Engineer Rear-Admiral G. Elbrow, Royal Navy. (London: P. S. King & Son. 1s. net.)

We were momentarily tempted to think that Lewis Carroll had arisen from the dead in order to give the public one of his quaint works when our eyes met such terms as *lnty teen* and *teenty lin* and *six hundred and teenty teen thousand*, *teen hundred and sixty-four*. We rubbed the same eyes and wondered, with Bret Harte, "Are visions about?" We turned over other pages of the author's book, and we found that George I. ascended the English throne in the year *lin hundred and teenty teen*, that Edward VI. should be described as Edward V. and as having commenced to reign in the year *teen hundred and eighty lin*. What does it all portend, and why is ten to be known as twelve, and what are *tyone*, *tytwo*, &c., &c.? Evidently this little manual must be either set aside as the work of a crank or else read with some care. We chose the latter alternative, and we found on closer perusal that it is a courageous attempt to reform a backsliding commercial nation.

The demerits of the English system are generally recog-

nised, and so also are the demerits of the decimal system; consequently Admiral Elbrow (to shorten his title for the nonce) has set to work in order to evolve a system at once logical and commercially sound. Most willingly do we recognise the thoroughness with which he has entered into his subject, but we fear it is but pouring water through a sieve and ploughing the sand. For with all its imperfections the English system has taken deep root, and a thousand-year-old nation (the author would call it twelve hundred) does not desire, even for the sake of perfection, to uproot a system in order to plant a new one. The author designates the latter the Duodenal system, making twelve the base, and the merits of such a base are obvious. He advances some specious or even meritorious reasons for effecting a change, but we can only designate as trifling the inclusion amongst such reasons of the one promulgated on page 11 (N.B.—This is page *tyone*) why we should benefit by the present year of grace being known as 1135 A.D.

Doubtless the proletariat will approve a measure that will give them three pints to the quart, though a man must have a big thirst upon him to ask straightway for a quart of beer. Should he ask for a gallon, however, he will only receive four quarts.

Land surveyors will have to learn "for the new area of a plot of land, subtract one for every *tythree* acres in the present measurement." And there let it rest.

"English and Welsh Cathedrals." By T. D. Atkinson. (London: Methuen & Co., Ltd. 10s. 6d. net.)

It must not be taken as a reflection on the literary merits of this volume if we say that the twenty illustrations in colour by Mr. Walter Dexter, R.B.A., are its most distinguishing feature. There are so many and so excellent histories of our cathedrals already that anyone who becomes fascinated by them as the subject for a book should ponder long before increasing the number. If he decides to add his contribution he should seek to justify such a course by in some way improving on his predecessors. But, as Mr. Atkinson frankly remarks in his Preface, it falls to the luck of few in these days to make important discoveries in the well-trodden ground of cathedral history. In the all-important matter of illustrations, however, a present-day author enjoys facilities unknown even to his immediate predecessors. Mr. Atkinson, for example, can first command the specialist skill of Mr. Dexter, and then call in the aid of the colour printer, who is making an almost daily advance in the sympathetic and accurate reproduction of water-colours. Mr. Dexter seems to have done everything possible to give the colour printer a good chance of success, and a success has undoubtedly been obtained. As presentments of architecture as viewed by a painter they are fine in nearly every case—not too much insistence on detail to detract from the tout ensemble, yet enough to suggest the character of the tracery and the shapes of the buttresses, &c. In all but three instances Mr. Dexter gives exterior views. They make the photographs seem curiously dull and unsympathetic.

Mr. Atkinson says he approached the writing of the book "from the point of view of the architect—the constructor." If this be so, it would seem as if its historical and personal side took greater possession of his mind than he realised, for it is those general aspects that are more conspicuous than the constructional. The pages provide entertaining reading for the least technical mind. As a traveller's *vade mecum* the volume has the disadvantage of being weighty and rather bulky. But these faults can be rectified when the second edition is issued.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Beaconsfield.—Workmen's dwellings.

CAMBRIDGESHIRE.

Comberton.—Workmen's dwellings.

CORNWALL.

Gulval.—Parish Hall (for 250 sittings), £2,000.

Padstow.—R.C. Chapel, High Street.

Working-class cottages, Sanders' Hill Lawn.

Penwithick.—Wesleyan Chapel.

Trevone.—Church.

SPECIFY

CLARIDGE'S

**PYRIMONT-SEYSSEL
ASPHALTE**

**FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.**

CLARIDGE'S PATENT ASPHALTE CO., Ltd.
21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

Orr's Zinc White Limited

Telegram : "Orr, Widnes."

WIDNES, LANCS.

Telephone : No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.**

ZINC SULPHIDE WHITE (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

DERBYSHIRE.

Belper.—"White Lion" Hotel: alterations. Messrs. Hunter & Woodhouse, architects, Bridge Street.
Burton.—Baths, near Pump Room: improvements (£4,600).

DEVON.

Exeter.—County Buildings, Castle Yard: extension (£7,500). Mr. E. H. Harbottle, F.R.I.B.A., of County Chambers, Queen Street, architect.
 The "Three Tuns" Inn: alterations. Mr. R. M. Challice, of 14 Bedford Circus, architect.
Tavistock.—Workhouse: Baths improvements.

DURHAM.

Felling.—Drill Hall for County Territorial Force Association.

ESSEX.

Brentwood.—"Thorndon Hall": renovation for Right Hon. Lord Petre (£15,000).
Leigh-on-Sea.—Baptist Sunday Schools, London Road. Mr. P. R. Fincher, of Broadway Chambers, architect. Messrs. W. Thorpe & Sons, of Church Hill, contractors.
Tilbury.—Police dwellings. Mr. F. Whitmore, of 73 Duke Street, Chelmsford, architect.

HERTFORDSHIRE.

Abbot's Langley.—"Ivydene," Abbot's Road: additions for Mr. F. D. Workman.

Letchworth.—P.M. Church and School, Broadway (£4,500).

Working-class cottages. Mr. J. C. Hooper, of Hitchin, Council surveyor.

Preston.—Six cottages for Mr. H. G. Fenwick.

Seven cottages for Mr. F. Harrison.

Radlett.—Premises for the Furniture Trades' Benevolent Association.

Watford.—House, Aldenham Avenue, for Mr. W. G. Taylor; also

"Lonsdale," Christchurch Crescent: additions.

KENT.

Brenchley.—Ten Council cottages.

Horsmonden.—Eight Council cottages.

LANCASHIRE.

Ashton.—District Infirmary: additions and improvements (£6,000).

Bolton.—Schools and workshops for the Blind, Marsden and St. George's Roads junction. Messrs. Bradshaw, Gass & Hope, R.I.B.A., of 19 Silverwell Street, architects.

Lancaster.—"Burrow Farm" House: additions for Mr. H. L. Storey.

LEICESTERSHIRE.

Hinckley.—Isolation Hospital.

MONMOUTHSHIRE.

Argoed.—Baptist Chapel: additions.

Bedwellty.—Workhouse infirmary: nurses' accommodation.

Hollybush.—Baptist Chapel.

Pengam.—House, shop, and stable, Pengam Road, for Mr. W. S. Jenkins.

NORFOLK.

Wells.—Church Room (£660). Mr. T. Hinson, of Theatre Road, contractor.

NORTHAMPTONSHIRE.

Church Brampton.—Stationmaster's house and three cottages.

Earls Barton.—Wesleyan Schools: enlargement (£1,000). Messrs. Talbot Brown & Fisher, F.R.I.B.A., of "Burystead," Wellingborough, architects. Messrs. Ellison & Knight, contractors.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Four rows of tenement buildings (under the Sutton Trust), Barrack Square.

Whitley Bay.—Railway Station, Monkseaton, for the N.E.R. Co. Mr. W. Bell (of York), Company's architect. Messrs. Noble & Son (of Dunston-on-Tyne), contractors.

SOMERSET.

Yeovil.—Council school, Kiddle's Lane.

STAFFORDSHIRE.

Cannock.—Police premises.

Leek (near).—Fifty-seven houses, Kniveden Lane and Mount Pleasant, for Mr. T. Goodwin.

Stoke-on-Trent.—Workhouse infirmary: nurses' home extension (£800). Messrs. Ball & Robinson, of Boothern Road, contractors.

West Bromwich.—St. Philip's Church: completion (£4,000). Messrs. Wood & Kendrick, of 315 High Street, architects. Messrs. Webb & Son, of Soho Hill, Handsworth, contractors.

SUFFOLK.

Bungay.—Council houses, Cemetery Road.

Stoke Ash.—Council school (£800). Mr. G. A. Kenney, of Army Works, Burrell Street, Ipswich, contractor.

SURREY.

Guildford.—Territorial Drill Hall: additions and alterations.

Limpsfield.—Ten working-class cottages.

Tadworth.—Working-class cottages.

WESTMORLAND.

Kendal.—Houses, Albert Road West, for the Co-Partnership Housing Association.

Workhouse: alterations.

Windermere.—Two houses, Beresford Road. Mr. G. H. Pattinson, of Elim Grove, builder.

WILTSHIRE.

Chippenham.—House, Marshfield Road, for Mr. Tanner.

Lowden Church Schools: alterations. Messrs. Smiths & Marshall, architects.

WORCESTERSHIRE.

Peopleton.—Four Council cottages, for the Pershore R.D.C.

YORKSHIRE.

Barnsley.—Alteration of premises, Pitt Street, for domestic science school.

Alteration of premises, Queen's Road, for a tuberculosis dispensary.

Bentley.—Council's offices, depôt, &c. (£2,500).

Dadworth.—Council chamber, surveyor's house, &c. (£1,200).

Doncaster.—Technical school (£13,000). Messrs. Schofield (A.R.I.B.A.) & Berry, of 15 Park Row, Leeds, architects. Mr. P. Rhodes, of Skinner Lane, Leeds, contractor.

Grosmont.—Wesleyan Sunday Schools. Messrs. R. A. Wilson & Sons, architects.

Ilkley.—Picture House. Messrs. Nagington & Shennan, of 35 Dale Street, Liverpool, architects.

Selby.—R.C. School (£2,600). Messrs. Bromet & Thorman, of Doncaster, architects.

WALES.

Aberdare.—Cinema Theatre, Aberaman (accommodation for 800 seats), £3,500. Messrs. Johnson (F.R.I.B.A.) & Richards, of Glebeland House, Merthyr Tydfil, architects.

Llanrwst.—Messrs. R. & R. Jones' Offices: improvements. Mr. J. Roberts, of Talybont, builder.

Nelson.—Cinema Theatre, Commercial Street. Mr. Lee, of Bargoed, contractor.

Pontardulais.—Council school.

Prestatyn.—Fifteen working-class houses (£2,900). Mr. F. Wilkinson, Council surveyor.

Swansea.—Swansea Wagon Works. Messrs. Cook & Edwards, of Masonic Buildings, Bridgend, architects.

Treharris.—Parish Hall, Trelewis.

SCOTLAND.

Dundee.—House, Farington Terrace, for Mr. J. C. S. Band.

Picture Theatre, Watson Street: addition, for Messrs. J. Stewart & Sons.

Property, Cowgate: alteration, for Messrs. A. Wishart & Son.

Property, South Tay Street: alteration, for Mr. Jas. Stewart.

Property, Strathmartine Road: alteration for Mr. G. B. Dunn.

Workshop, Paton's Lane, for Messrs. McTavish, Ramsay & Co.

Dunfermline.—Library: re-construction and extension (£14,000).

Giffnock.—Parish Church.

Glasgow.—Brewery, Burn Road, Partick: additions for Messrs. Gordon & Blair, Ltd.

Church halls, &c., Rosevale Street, for St. Bride's Parish Church.

Picture House, &c., Duke Street, for Parkhead Cross Picture House, Ltd.

Dalhousie Tramway Depôt, Scott Street: alterations for the Corporation.

RUBEROID SARKING FELT

Ensures a weathertight roof under all conditions. It is perfectly waterproof and prevents leakage in cases of cracked slates or tiles. Should always be employed on roofs of low pitch.

Non-conducting, inodorous, sanitary: water, damp, and rot proof, it is an excellent lining for temporary hospital, sanatoria, etc.

Used on Admiral Peary's Arctic Expedition, and by Captain Scott's Antarctic Expedition, for lining all huts, etc.

Low in cost yet permanently efficient. Free from tar. Samples to test and full particulars on application to

The Ruberoid Company, Ltd.

22 WATERLOO HOUSE, KNIGHTRIDER STREET,
LONDON, E.C.

2 Forth Street, Newcastle-on-Tyne.
37 Assembly Street, Leith.
1 Aston's Place, Dublin.

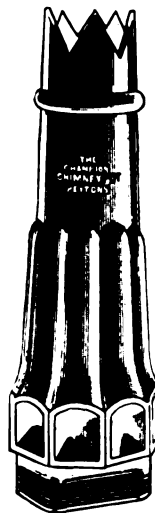


**THE
'HEAPED'
FIRE**

(Bratt's Patent)

is scientifically constructed
to generate great heat
with economical fuel con-
sumption.

Sole Makers—
BRATT, COLBRAN & CO.
and the HEAPED FIRE COMPANY, LTD.,
10 MORTIMER STREET, LONDON, W.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the 'Champion' has been specified by LEADING ARCHITECTS and has sold in large numbers. Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

"Exmet" Brickwork Reinforcement

A NEW TYPE OF EXPANDED METAL
FOR REINFORCING BRICKWORK, Etc.

IMPORTANT NOTICE

Statements have been published implying that the use of "EXMET" for brickwork reinforcement constitutes an infringement of certain Patents, controlled by other manufacturers, and threats of actions for infringement against users of "EXMET" for brickwork reinforcement have been made.

The Expanded Metal Company denies any such implication, but the statements have been too vague, as yet, to admit of any action being taken to stop them.

The Company undertakes to protect its customers who use "EXMET" or any of its products for brickwork reinforcement, by indemnity and guarantee against all damages for any actions for infringement.

THE EXPANDED METAL COMPANY Limited,

Patentees and Manufacturers of EXPANDED METAL.

HEAD OFFICE
(to which address enquiries should be sent):
York Mansion, York Street, Westminster,
London, S.W. Telephones:—
"Distend, Vic., London." Gerrard 819; Victoria 1514.

WORKS
(to which address orders should be sent):
Stranton Works, West Hartlepool.
Telegrams:— "Expansion, West Hartlepool." Telephone:—
94 West Hartlepool (2 lines).

April, 1913

SCOTLAND—continued.

Glasgow—continued.

Rubber Works, Sandfield Street, Maryhill: additions for Leyland and Birmingham Rubber Co., Ltd.

Metal workshops, 172 and 173 Main Street, Gorbals: additions for Mr. G. C. Trainer.

Nairn.—House, Delnies. Mr. L. K. Hall, F.R.I.B.A., of 38 Victoria Street, London, architect. Separate trade contractors.

Pollokshaws.—Nos. 93-105 Main Street: additions and alterations for Dr. Hugh Walker.

Robroyston.—Hospital (£60,000), for Glasgow Corporation.

Seafeld.—Hundred workers' houses, for Pampherston Oil Co.

Selkirk.—Workers' houses, for Mr. G. D. Gibson.

Tarbrax.—Workmen's houses, for Pampherston Oil Co.

IRELAND.

Armagh.—Sanatorium for consumptives, Navan Street.

Dublin.—Two hundred and forty-one labourers' cottages, for the County.

Newry.—Premises, Hill Street: alterations for Mr. B. McKerry.

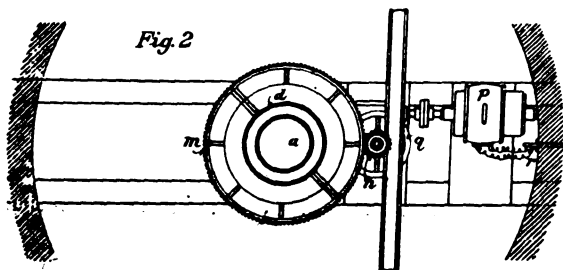
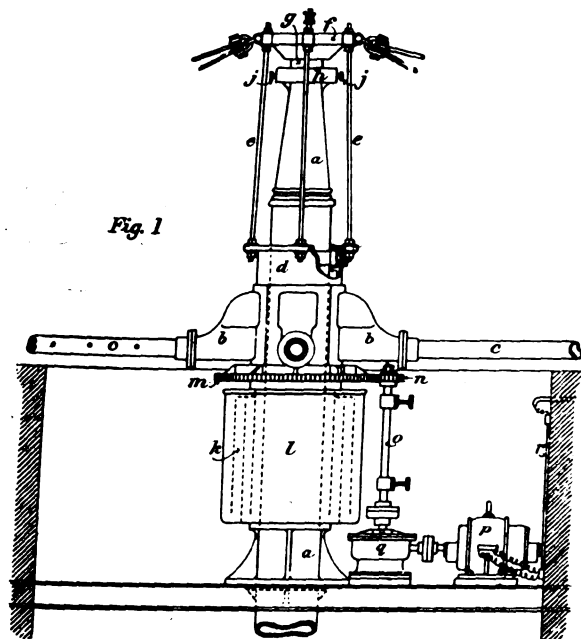
Store, Castle Street, for Mr. A. McCann.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 26,229. Nov. 15, 1912.—Sewage distributors and the like. S. H. Adams, A.M.I.C.E., White House, Fulford, York. The object of this invention is to so construct a revolving sewage distributor that it may be operated either by the power of the water itself which it delivers or by electric power when the head of water in the distributor is insufficient



to revolve it without this additional power. The cog wheel which drives the distributor has a pawl within it, so that the apparatus can only travel in one direction, the result being that, should the driving power of the water be greater than that of the electric or other mechanical power, the apparatus would revolve without the mechanical power, when the latter would be shut off; that is, the apparatus would disengage itself from the driving power. Fig. 1 is an eleva-

tion and fig. 2 is a plan; a is the central column up which the liquid to be treated passes, and through which it is delivered to the sockets, b, and the perforated arms, c, c. These arms are attached to the revolving body, d, and the latter is supported by the stays, e, e, which are in turn connected to the crosshead, f, and the crosshead rests upon ball bearings within it, which are placed at the top of the column at g. At h is a plate, which is adjustable by means of the adjusting set screws, j, the object of this plate being that it may be pushed over in any direction in order that the ball races upon which the crosshead, f, travels may be set in the dead centre of the vertical column a. The joint between the revolving body and the central column has an air lock joint, the air lock being shown at k, and at l is the outer fixed body of the distributor. At m is the cog wheel, which encircles the body of the distributor. At n is the spur wheel, in which the pawl is fixed; at o is the vertical spindle driven by the motor, p, and at q is the worm-drive, by means of which the power is imparted, and at r is the wire bringing the current to the motor, p. Aug. 6, 1913.

PATENT SPECIFICATIONS PUBLISHED
AUGUST 28, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 10,486. May 2, 1912.—Jessie Wade, 22 Girdlers Road, West Kensington, W. Construction of windows, screens, and the like structures.

15,837. July 6, 1912.—F. S. Lister, 53 Victoria Street, S.W., and L. J. Simon, 5 Holmdene Avenue, Herne Hill, S.E. Purifying, humidifying, sterilising, heating, or cooling of air.

17,856. Aug. 1, 1912.—Dated under International Convention, Aug. 1, 1911. Wilhelm Barthold, Kaiserslautern, Germany. Obtaining hewn stones in quarries.

18,358. Aug. 9, 1912.—R. F. Carey, 41 Leyton Avenue, Leigh-on-Sea. Hydraulic lift mechanism.

18,503. Aug. 12, 1912.—Dated under International Convention, Nov. 13, 1911. Ludwig Schomburg, 53 Kaiserstrasse, Gelsenkirchen, Germany. Pipe joints.

19,904. Aug. 31, 1912.—L. A. Mawson, 33 Cheshire Road, Smethwick. Reservoir brushes for paint, varnish, and the like.

20,485. Mar. 10, 1913.—H. R. Steele, 26 Linton Road, Barking. Process for the manufacture of sheets or slabs of fibrous plaster or other similar material or substances and a machine for carrying out said process.

21,757. Sept. 24, 1912.—E. T. Bates, 1415 Irving Street, Washington, D.C. Flexible tile coverings for floors, walls, and the like.

21,771. Sept. 25, 1912.—Geo. Kilborn, Shotwell Mill, Rothwell, Northampton. Device for re-seating water, steam, and other valves, stop cocks, and the like.

25,559. Nov. 7, 1912.—F. W. Seabrook, 65 Parfrey Street, Fulham. Padlocks.

Any of the above specifications may be obtained from J. D. Roots & Co.



Architecture of London Highways.

SIR,—It will be obvious to your readers that a slight omission occurs at the conclusion of the article on "Architecture of London Highways" in the current issue of your paper. The area of the Metropolis is 121 square miles; how the century came to be omitted I cannot say.—Faithfully yours,

September 1, 1913.

VIATOR.

Registration.

SIR,—I have received a letter from the New Zealand Institute of Architects informing me that a Bill to provide for the statutory qualification and registration of architects practising in New Zealand has passed the second reading, and has been referred to a special Committee of the House. The promoters have every reason to hope that the measure will be passed this Session.—Yours faithfully,

C. McARTHUR BUTLER, Secretary.

The Society of Architects,
28 Bedford Square, London, W.C.:
September 1, 1913.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST — COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

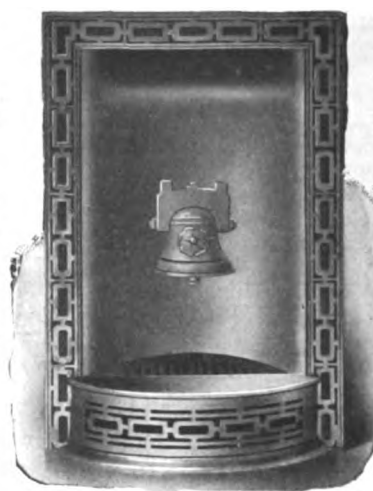
STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curcursold, Sewest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

**GOLD MEDAL
"BELL"
GRATES**

are in use all the world over, and giving the greatest satisfaction everywhere.

Illustrated Catalogue on application.



**Bell Range
& Foundry
Co.,**

16 Berners
Street,
London, W.,
and
Northampton.

FACTORY LIGHTING

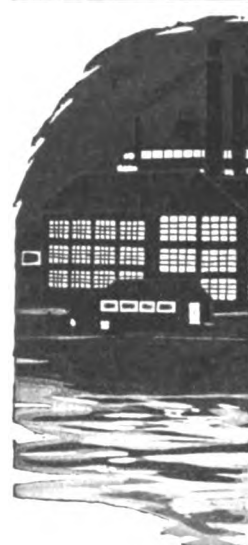
Efficient factory lighting pays for itself in increased output and decreased costs.

Scientific illumination means satisfaction to architect, owner, and workers.

Our Illuminating Engineers are ready to advise in all kinds of mill and factory lighting.

Write for free Booklets.

THE BRITISH THOMSON-HOUSTON
CO., Ltd.,
Mazda House, 77 Upper Thames Street,
London, E.C.



— THE —

Universal Concrete & Construction Co. Ltd.

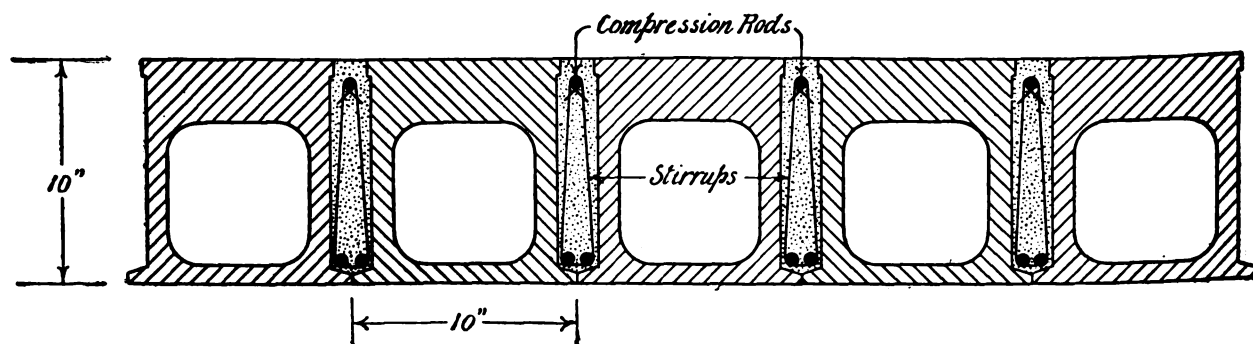
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without Beams projecting below the Ceilings, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
On Brick (illustrated)	229
Notes and Comments	231
Window in Powerscourt House, Dublin (illustrated)	231
Competition News	232
Illustrations :—	
A. A. Normandy Excursion Sketches	232
A Small Country House	232
The Disintegration of Brick Walls (illustrated)	233
British Sculpture and Mural Painting	234
Public Buildings in New South Wales (illustrated)	236
Pershore Abbey	238
Reinforced Concrete Wall and Column Footings	241
Society for Protection of Ancient Buildings	243
Post Office, Alençon (illustrations)	244-5
Building Progress in the Provinces	247

British Patent Specifications	PAGE 249
Correspondence	251

FORTHCOMING EVENTS.

Saturday, September 13.

Northern Architectural Association : Visit to Gateshead Asylum at Stannington.
Upper Norwood Athenæum : Visit to Oxted and Limpsfield.
Architectural Association Camera, Sketch, and Debate Club : Visit to Quebec House, Westerham.

Friday, September 19.

Architectural Association Camera, Sketch, and Debate Club : Week-end Visit to Goudhurst and District (September 19-22).
Institute of Sanitary Engineers : Meeting at Manchester (two days).

Monday, September 22.

The Annual Association of Master House Painters and Decorators : Annual Convention opens at Leamington (three days).

ON BRICK.

IN his annual report on architectural work in India for the year 1911-1912, Mr. John Begg, the consulting architect to the Government of India, puts forth his views on the subject of Indian brickwork, in which he says: "Speaking generally, Indian bricks are good and sound, but the fault commonly found with them, namely, that from one cause or other they are irregular, is by no means unfounded. In common with all users of brick I am always glad when I see successful efforts to improve the regularity of bricks. But it must not be forgotten that the worst fault with Indian bricks, from the point of view of their appearance, is their large gauge. The experience of architects in all parts of the world is that with bricks which build to a higher gauge than four courses and joints to the foot the effect of scale of the work is prejudiced. In fact, it may be said that the smaller the bricks are in reason the better the effect of the work. With bricks building to a gauge of five or six courses to the foot the particular 'bricky' effect which the architect aims at is greatly enhanced. Another advantage is that with small bricks the usual irregularities to be found in India do not matter. It is only with the larger gauges of bricks that regularity is of great importance, as without it it is difficult to avoid a clumsy effect. What would otherwise produce 'texture' is apt to lead to clumsiness."

The opinions which Mr. Begg here expresses lead us to a consideration of the various elements which go towards the artistic expression of brickwork. There are many varied possibilities of artistic character in different qualities of brick, and a great variety of effects can be obtained from the selection and use of one or other. The smallness of the component parts of a brick wall conduces to great variety of treatment.

Commencing first with a consideration of texture, we have at the one extreme the even regularity of gauged brickwork, with its uniformity of colour and exceeding fineness of joint, and it would almost seem that Mr. Begg, in his desire for improving the regularity of Indian bricks, had a hankering after the smoothness of eighteenth-century gauged brickwork with its so-called Flemish bond, and "all the perpends carefully kept," tending to produce a perfectly regular and precise super-excellent finish. But Mr. Begg is not right in including in his own class all users of brick. We have, in the twentieth century, learnt the lesson to be gained from careful study of old brickwork. We find there that the surfaces of brick are usually rough; that they differ in colour, and that infinite variety in the play of light and shade, as well as of tone, give quite a distinct character to the surface of a brick wall. On the one

hand, in gauged brickwork we have the texture of broad-cloth, on the other that of homespun, and nowadays our predilections are, for the most part, in favour of rough and varied texture.

The regular evenness of colour of the hand-made sand-faced Fareham brick, laid in Flemish bond with "the perpends carefully kept," has given way to such a demand for roughness as to induce manufacturers to go out of their way to produce artificial unevenness of surface in their machine-made productions. The success of these manufactures, of which so many specimens were to be seen in the last Building Trades Exhibition, cannot be regarded as complete. The rough surface produced by machinery is, of necessity, mechanical and repetitive, and although each individual brick may be far removed from smoothness, the texture produced by a number of bricks all similarly and equally rough and of equal size is the same in kind, though not in tone, as that of gauged brickwork. The machine must, of necessity, make all the bricks alike. The essential charm of old brickwork, such as may be seen in Normandy, of sixteenth, seventeenth, and eighteenth-century date, is that the bricks are not all alike, and so too with the old bricks which are now greatly sought for in the facing of modern buildings by those of our present-day architects who are masters of texture.

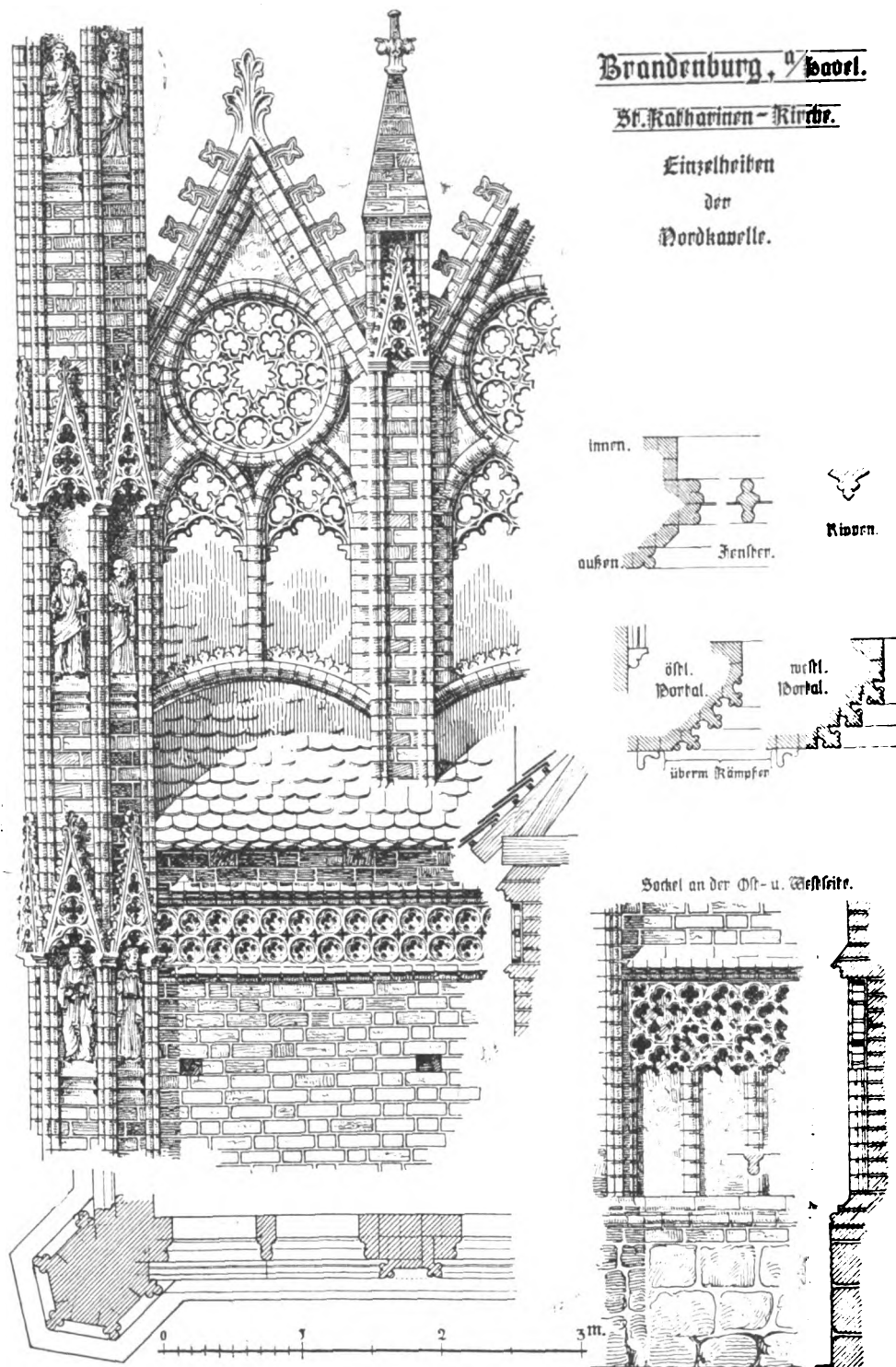
The only way in which satisfactory roughness of brick can be artistically utilised is by the employment of accidental roughness, resulting, it may be, from a technical point of view, from imperfect craftsmanship in the mixing, making, and firing of the brick. When we examine carefully old brickwork, we find that the bricks are varied individually in the texture of their surface. Some are more or less smooth, others striated or mottled, uneven in surface and irregularly so. They appear to have been made by the hand of a careless workman who was not at all particular whether his clay evenly filled the mould and cleanly left it, nor whether it was thoroughly tempered or evenly mixed. Bricks of the same course vary in size in every dimension—length, breadth, and thickness, though one generally finds that in any one particular piece of brickwork the thickness more closely approaches to uniformity: thus the courses were fairly regularly kept.

The irregularity in the size of bricks necessarily precluded any precision in the keeping of perpends, and here the almost mechanical regularity and evenness of gauged brickwork is contrasted with the accidental irregularity of old work. Prior to the eighteenth century the bricklayer seemed to have no sort of idea that the keeping of perpends was part of his craft. A very important point in the texture of brickwork is the size

of the individual bricks, and Mr. Begg is undoubtedly right in his advocacy of small bricks. That is the direction in which it seems to us he should endeavour to improve Indian brick manufacture, leaving the irregularity of size and surface to take care of itself.

We believe that the late Mr. George Edmund Street, in building the Law Courts, was the first to introduce into modern architectural practice the 2-inch brick. In really old brickwork this would seem to be more often

In North German brickwork, too, we find that often bricks are small and joints are large, and here we have particularly noticed the very frequent employment of the set-back mortar joint, producing in itself a peculiar effect of texture in the walling. This device, we may mention, has been used by Mr. Beresford Pite in his Christ Church, North Brixton. The texture of the brick wall surface depends, to a very large extent, on the form of the mortar joint as well as its colour and thickness.



[From Die Kunstdenkmäler der Provinz Brandenburg.]
DETAILS FROM ST. CATHERINE'S CHURCH, BRANDENBURG.

than not the normal maximum, and even smaller thicknesses are frequently used. Thus, for example, in the Manoir at Bosc Guerard, a sketch of which we illustrate this week, the size of the bricks are to be found running as small as $7\frac{3}{4}$ inch by $3\frac{3}{4}$ inch by $1\frac{1}{2}$ inch, $1\frac{1}{2}$ inch to $1\frac{3}{4}$ inch being the maximum range of thickness. In old brickwork one almost invariably finds that the mortar joint is never less than $\frac{1}{4}$ inch and even more. Thus, at Bosc Guerard, $1\frac{1}{2}$ inch bricks rise six courses in 11 inches.

and the careful student of texture in brickwork must give full consideration to this item.

Our reference to the brickwork of Northern Germany reminds us of the particular use of brick which has been adopted largely in old work, both in our own country—as at Wymondham and Layer Marney—in Germany and in North Italy, when ornamental parts are formed in what is really brick, though often mis-called terra-cotta. Mouldings, cuspings, and other detail are made of the normal brick, rough, in small dimensions, solid and

burnt as the ordinary walling brick, so that in no particular, save in their form, do they differ from the plain rectangular brick.

Such brickwork, therefore, as we illustrate from Brandenburg, differs essentially in intention and in effect from cut and rubbed gauged work in soft, underburnt material. We cannot leave the subject of brick texture without a reference to diaper. In all old diapering of brickwork we think it is safe to say that the pattern is formed by darker coloured bricks, whose colour is accidental and variable. It is the result of something that has happened in the kiln more or less fortuitously, even in those cases where an enamelled glaze has been put on to the clay before burning. More often than not, it is merely the result of proximity to the flare of the fire, which in old work was usually of burning wood. Connected with diapering is the use of variation in bond. This also is an essential element in the production of texture.

We come to the conclusion, therefore, that the artist who works with the texture of brickwork has at his hand a very extensive palette—smoothness and roughness, regularity and irregularity, variation and uniformity in colour, in size, in arrangement of both brick and joint. Thus even a plain brick wall, without openings or features, can be made the medium of artistic expression.

NOTES AND COMMENTS.

COUNT ROBERT DE SOUZA, in writing on the future of well-ordered towns, with special reference to that of Nice, points out the mischief that has been done to this particular city by neglect of a wide prevision and intelligent foresight. The town of the future, if it is to be prosperous, must be designed to accord with the needs of its inhabitants, their business and their pleasures must be considered not only with reference to the particular demands of the moment but with wise anticipation of the desires as well as of the necessities of the future. In particular, it must be ever remembered that attractiveness is essential to the growth or continuation of the prosperity of a town, that the "amenities" of cities are to-day of greater importance than ever, and that it is practically certain that in the future they will be so more even than to-day. Inasmuch as it is the peculiar province of the architect to combine provision for necessities with that of beauty, it is clearly the province of the architect to determine the lay-out of the towns that are to be prosperous. Not only those that on rare occasions start *de novo*, like the new Delhi or Letchworth, but of those that have come into existence, as have the majority, in a haphazard fashion without the guidance of a supreme director.

The work of excavation and exploration that has been in progress since 1909 by the Society of Antiquaries has yielded such interesting results that we are not surprised to learn that the Royal Archaeological Institute has arranged a special visit to Stonehenge and Old Sarum for Friday, September 26. A full day's programme has been prepared, particulars of which can be obtained from the Secretary, Mr. G. D. Hardinge-Tyler, but as the possible number of participants is limited early application is necessary.

It is surprising that the British system of estimating for building works on uniform bills of quantities has not sooner been adopted in the United States, and that it is necessary for a campaign to be conducted by the American Institute of Quantity Surveyors to popularise more exact methods of tendering than have hitherto been in vogue.

The usual preliminary skirmishes that are often to be noted in municipal bodies when any serious proposal is on the tapis seem to be in full swing in Manchester over the scheme for an extension of the Town Hall.

Manchester in particular seems to be blessed—or otherwise—with at least three distinct parties, any two of which will always combine to defeat the third on any particular question.

As we all know, there are many thousands of acres in England that are derelict for want of sufficient fertility, and hence the experiment to be tried by the Duchy of Lancaster on some of the sandy wastes belonging to the demesne is of peculiar interest. The reclamation of sandy land has been practised with success in Germany, and there is apparently no reason why similar methods should not give good results in this country.

Atmospheric pollution is so disastrous to the durability and the beauty of buildings, as well as to the health of the community, that we must welcome the action of Dr. Robertson, the Medical Officer of Health for Birmingham, in undertaking an investigation of the air of his city, so that in common with other towns, more particularly of industrial character, the municipal authorities may have convincing evidence before them that it is their duty to do something, and impress upon smoke-makers that it is to their advantage as well as an imperative obligation to practise economy rather than waste in their use of coal.

The example of the managers of the Boys' Brigade and other similar organisations in Edinburgh in arranging a visit of some 400 boys to the Royal Scottish Academy Exhibition, following past precedent, is one that is worthy of imitation elsewhere. The training of young people in the appreciation of art is the best means of ensuring a proper recognition of its function in the community, and of the benefits as well as pleasure to be obtained from its pursuit.

WINDOW IN DRAWING-ROOM, POWERS-COURT HOUSE, DUBLIN.

THE window illustrated on page 232 is the central feature in the main elevation of Powerscourt House. This fine mansion was built by Richard, third Viscount Powerscourt, who succeeded to the title in 1764. The design is generally ascribed to one Robert Mack, who in contemporary manuscripts is described as a mason. As there is no other work of his known in Dublin, it is possible that he was a builder rather than an architect. The house was begun in 1771, as is shown by the MSS. Builders' Daybook, which is still preserved, and from which the following entry is taken:—

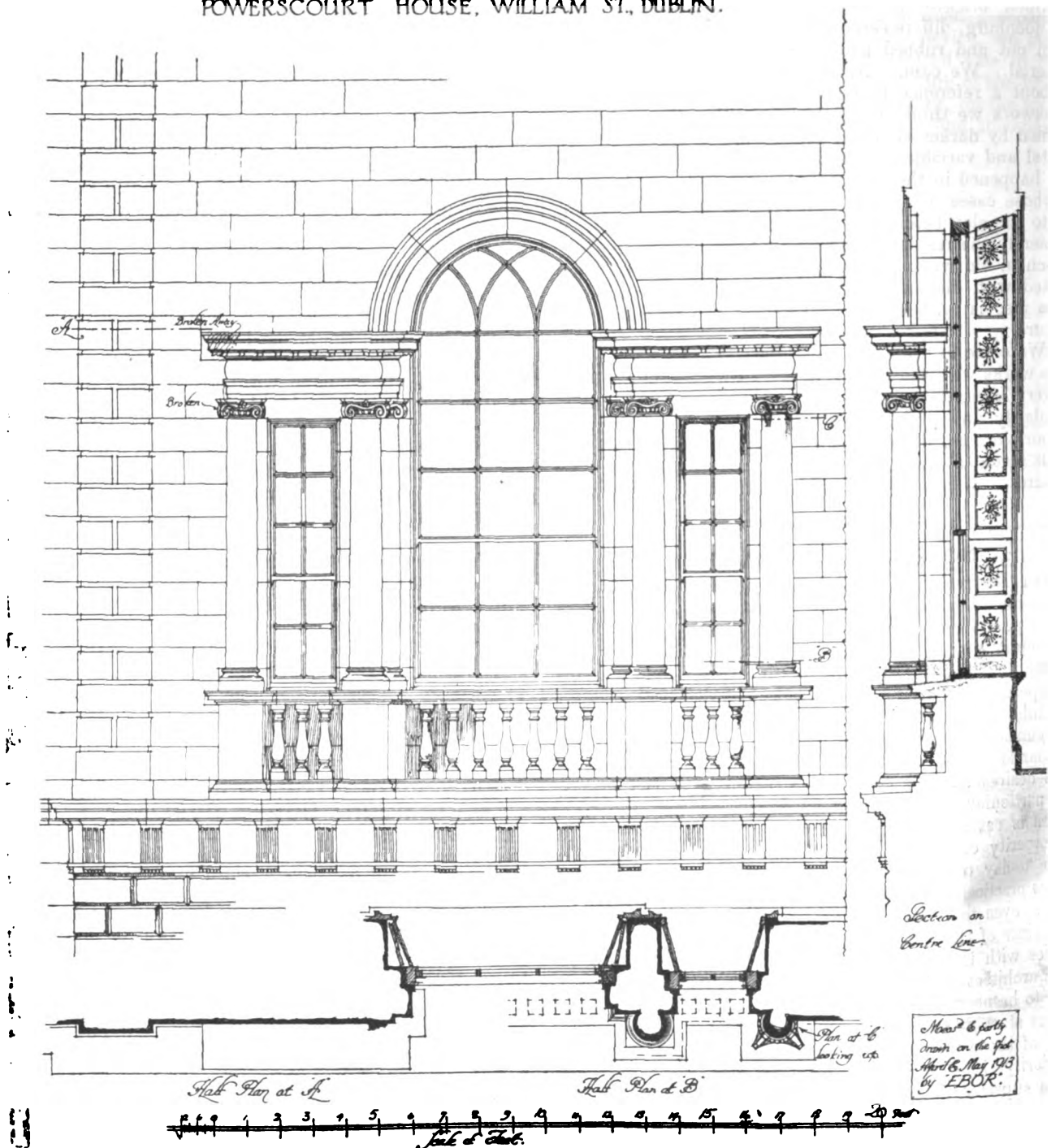
"On the sixth and seventh of April Lord Powerscourt approved of the plan and Elevation for his house Drawn by Robert Mack and agreed to pay the said Mack at the Rate of five p^r Cent. for Conducting the whole of s^d works, as also that s^d Mack is to Execute all the Stone cutting parts of s^d house."

Next day, we learn from the same source, the clearing of the site began, and the house proceeded steadily, and was completed in 1774. It is built of granite from the Powerscourt Estate, county Wicklow. The carpentry work was done by J. Doyle, carpenter, and the carving by Ignatius McDonagh.

Gateways, with massively rusticated piers, to the left and right of the main façade lead respectively to the kitchen and its offices and to the stables. The main entrance hall is paved with black, grey, and white marble, and has a good plaster ceiling. Through an elaborately carved pine doorway, with a mahogany door, the main stair is reached. This stair, of mahogany, is one of the finest in Dublin, and leads to a fine suite of rooms on the first floor. The ceiling and walls of this staircase are ornamented with stucco work of a rather heavy character. The drawing-rooms on the first floor have all fine plaster ceilings. These rooms are now, however, used as warerooms, the walls are shelved, and the fire-places have been removed.

James Malton, in his "Views of Dublin," published in 1797, gives an engraving of Powerscourt House, and remarks that, "although not in the best style of composition, it may be considered, in point of consequence of appearance and architectural embellishment, as the third private edifice in Dublin."

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

WINDOW IN DRAWING ROOM
POWERSCOURT HOUSE, WILLIAM ST., DUBLIN.

COMPETITION NEWS.

NEWCASTLE-ON-TYNE.—The Housing Committee have considered plans for laying out a portion of the Walker estate for housing purposes. Twelve sets of designs were submitted, and the Committee made the following awards:—First premium (£50), Messrs. Edward Cratney & Stewart Kaye, Newcastle; second premium (£30), Mr. Malcolm Bennett, Brighton; third premium (£20), Messrs. Slater, Andrews & Wheeler, Colchester. The winning design shows eighty acres laid out entirely on garden city lines, careful consideration having been given not only to the aspect and traffic facilities, but to the future development of adjoining land. The main roads run generally S.E. by N.W. across the contours, and, owing to the proximity of Walker Park, it has not been thought advisable to devote any portion of the estate to open spaces. Altogether it is proposed to erect 1,195 houses in blocks of two, three, four, five, and six. Three types have been adopted, containing one, two and three bedrooms respectively, and the principle of providing one large cross ventilated living room with small scullery adjoining has been used throughout.

SWANSEA.—The Committee of the Rhyddings Congregational Church have accepted the design of Mr. W. Beddoes Rees, of Cardiff, in the architectural competition for a new church. Thirty-five sets of plans were sent in.

ILLUSTRATIONS.

ARCHITECTURAL ASSOCIATION EXCURSION TO
NORMANDY, 1913.

WE this week complete our series of drawings made by Mr. L. Sutton Wood on the Architectural Association excursion with views of the Château at Cleres, the Manoir at Bosc Guerard, and Petit Andely from Château Gaillard.

A SMALL COUNTRY HOUSE.

BASED on recollections of two little houses in France, where comforts were enjoyed, but no superfluities. The pretty exterior well was exchanged for a pump with regret, as also the silver-grey slates of Trélazé for local tiles. There is but one outside entrance, and there are only two chimney stacks. The plan should encourage the "simple life," of which we hear so much and see so little.

THE DISINTEGRATION OF BRICK WALLS.

By JAMES SCOTT.

THE dangerous and disfiguring deterioration of bricks by means of various plants of the cryptogamic group deserves far greater consideration than it has apparently so far received. We see shallow patches of green matter spreading slowly over the facings of walls until sometimes several feet space may become covered with it. The drastic remedy of the workman who supervises these things is to scrape off the portions of bricks bearing them, in this way disclosing a fresh and rich redness, which, however, is liable to quickly succumb to the same misfortune. The scraping is detrimental to the general strength of the wall, as it practically results in the hollowing out of the attacked bricks without in any way reducing the risk of subsequent infection.

Glazed bricks are not, of course, subject to the attacks of the groups of plants named, but this style is too expensive for ordinary building. It ought to be possible to devise some chemical treatment of new bricks (at any rate, in regard to their surfaces) which would either delay or entirely check their spoliation in the manner described.

The co-operation of science with the architectural profession is much needed in this and kindred subjects. The botanist studies plants from a botanical standpoint; the geologist studies earths from a geological standpoint; the microscopist studies everything from a minute point of view; the architect designs his buildings without much thought of their subsequent exposure to dwarf enemies; the builder carries out the idea of the architect materially, and does not trouble about mystifying cryptogams. Yet slowly the tiny things do their work, and spoil that of the human being, thus proving that the minute world is the most powerful in the long run.

Architect, botanist, chemist, geologist, and microscopist should help one another, the knowledge and art of each being at the disposal of all. Unfortunately, however, there is no co-operation of the kind, and, therefore, useful and beautiful erections may gradually crumble, being meantime quite unsightly.

One of the main factors in the reduction of brick substance (thus opening the way for the introduction of the

would afford foundations for entrance of the fine filamentous "roots" of *conferva* and liverworts, &c.

All plants, even the lowliest, need mineral food, and can best secure it from substances which have been sufficiently pulverised so that the soluble portions can be dissolved away from the insoluble, and be absorbed by the "roots." The insoluble parts can be rendered soluble by the action of dilute or strong acids, one of the commonest and most effective reagents being the sulphurous acid already mentioned.

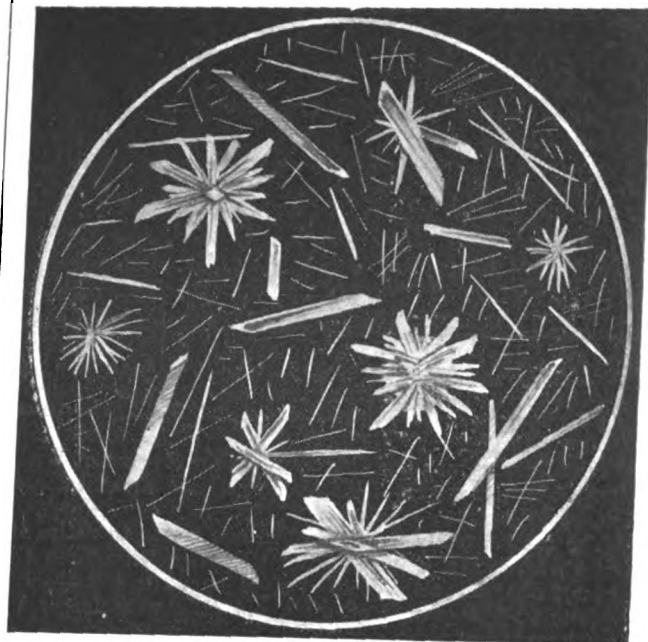


FIG. 2.—The diameter of the circle corresponds with that of a small magnified pinhole, in which is a drop of water, acidified with dilute sulphuric acid (to imitate atmospheric influence) evaporated and leaving behind a host of soluble crystals obtained from bricks.



FIG. 1.—The diameter of the circle corresponds with that of a small pinhole, magnified, in which is a drop of rain water obtained after soaking a piece of brick. The crystals remain after evaporation of the water.

spores of dwarf cryptogams) is the sulphurous acid of the atmosphere, resulting from the purely normal reactions of the vast amount of smoke which permeates the air.

The sulphurous constituents of the smoke are liberated, and the atoms of freed sulphur, or else the sulphurous acid itself, become oxidised, in the presence of moisture, into dilute sulphuric acid, which may, notwithstanding its natural deliquescent character, become considerably concentrated, and so be very efficacious in disintegrating the constituents of the bricks. Without some method of protection, such as that obtained by glazing, bricks chemically attacked

That rain is capable of extracting noticeable quantities of the components of a brick can be understood by referring to Fig. 1. Some rainwater was caught in a glass jar, and in it were placed a few small pieces of a broken brick. After allowing the material to soak for a day, the liquid was filtered off and evaporated, leaving behind soluble crystals of the kind shown. These would no doubt be carbonates of various kinds, their appearance being due to the action of the carbonic acid (CO_2) dissolved in the rain.

Next were soaked, for about twelve hours, some bits of brick in a dilute solution of sulphuric acid, making the strength approximate to the most potent results accruing from the operations of very smoky, damp air. After filtering and evaporating the clear solution thus obtained, it was found to be full of crystals of the shapes shown in Fig. 2, these being sulphates of different constitutions.

The simplest forms of plant that attack brick walls are the *conferva*. These are green algae, and are little more than tufts of very fine hair-like filaments. Their natural habitats are ponds and ditches, where they attach themselves to stones, weeds, and earth; but they also abound in roof-gutters. When the latter dry up, the dust which gets blown out of them may be full of the spores of these plants.

A very common form is that of silk-like, semi-transparent threads of protoplasm, which split up into minute granules, as in Fig. 3. The latter, when ripe, burst out from the hollow segments as two-ciliated spores capable of swimming about by means of their curious little whips (the *cilia*) in any drop of water available. Millions may exist on the face of an apparently dry brick. When it finds congenial surroundings the activity of a spore ceases, and it settles down and rapidly germinates into a fine thread, which, like its fore-runners, will intermingle with the particles of the brick, and so further disintegrate it.

Among the plants which deface the upper, more sheltered portions of walls, must be included the liverworts, *Anthoceros gracilis* (Fig. 4), and kindred species. The plant named, and similar ones, first form as threads emanating from spores. These threads, known as *rhizoids*, give rise to numbers of cells, which compose a thin, folded, wrinkled layer or *thallus*, from which spring erect spines (each under $\frac{1}{2}$ inch long), full of minute spores arranged around a central column. Among the spores are numerous free, twisted threads called elaters. Each spine is a *sporogonium*, and

B

opens lengthways into two distinct valves, thereby liberating the rows of spores, the egress of which is accelerated by the antics of the elaters. The latter unwind and spring about like a lot of cheese maggots.

It should be noticed that the normally invisible spores of all these cryptogams are widely distributed, so that fresh colonies may be started elsewhere, while the actual mischief to the bricks is occasioned by the fine threads which are adherent among their particles.

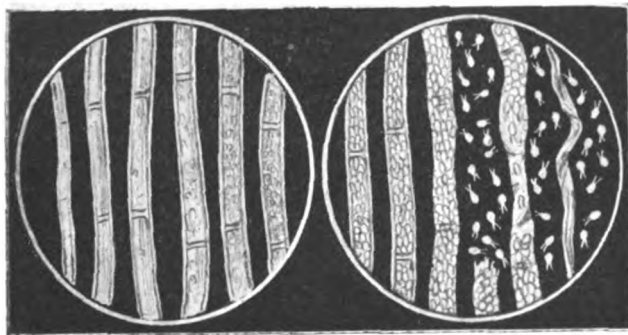


FIG. 3.—Highly magnified filaments of *conferva* from a brick wall. In actual diameters the filaments resemble spider's threads. Interior protoplasm granulates and gives rise to ciliated, reproductive spores.

Small mosses may find lodgement in the crevices of bricks after the lowlier species of plants have started the disintegration.

The fact is really curious, when one comes to notice it, that such physically insignificant plants growing from the surfaces of walls really do so at right angles to those which vegetate on the ground or roofs. If they were larger we should marvel at their remarkable attitudes.

It must, of course, be borne in mind that as the surfaces of house walls are vertical, rain would tend to quickly slip off them unless prevented from doing so. The presence of extensive green patches over walls proves, however, that there must be some means of hindrance to the free passage of water down the walls. Sometimes a leaky roof-gutter or an upright

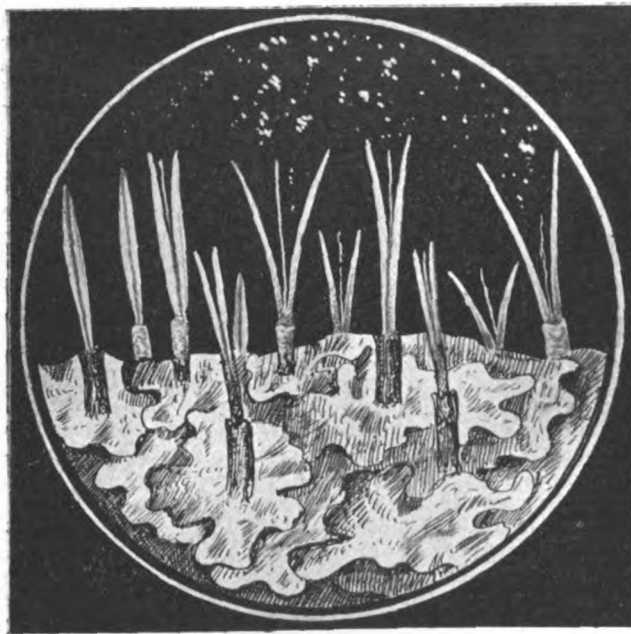


FIG. 4.—A magnified specimen of an *Anthoceros* liverwort from a brick wall. Erect hollow *sporogonia* split into two valves each, and meantime discharge masses of reproductive spores. Actual height of cases $\frac{1}{4}$ -inch.

pipe may start the trouble. Overflowing gutters are another source of distribution. But damage will occur in the middle areas of walls which apparently give no accommodation for such destructive agencies.

It seems that cases may start through water remaining unduly long in cavities caused by the breaking away of small pieces of mortar. This water would then slowly trickle down over the face of the adjacent bricks, meantime dissolving out some of the available particles, thereby giving the spores of any *conferva* and liverworts blown on to the parts the chance of securing a lodging which might become permanent.

Minute animalculæ swarm in moist rotting bricks. If a piece of brick covered with any kind of green matter is laid in a saucer of water for a few hours the liquid will become a source of attraction to a microscopist, as a large number of species of living forms, which feed on the cryptogams, will be observable.

BRITISH SCULPTURE AND MURAL PAINTING.

THE Ghent International Exhibition will always be noteworthy as marking an official recognition by the British Government of the Decorative Arts. This was done through the newly-created Exhibitions Branch of the Board of Trade, whose existence has been amply justified by the results. For the first time an endeavour was made to unite the various examples of Arts and Crafts in a concerted scheme. Another important gain is seen in the production of a complete and authoritative catalogue, under the superintendence of Sir Isidore Spielmann, the Director for Art of the Exhibitions Branch.

As this is the first occasion that an exhibition of British Arts and Crafts has been organised by the Exhibitions Branch to represent British Art at an International Exhibition, Sir Isidore Spielmann has thought it advisable to include in the volume a series of articles on the development and present position of what is generally spoken of as the Arts and Crafts Movement of this country.

Commendatore Walter Crane has written a foreword in which he traces the growth of British Arts and Crafts as a whole and describes the scheme and scope of the present exhibit, and has also contributed the article on book illustration and decoration. Mr. R. Anning Bell has written articles on British Sculpture and on Mural Decoration. Mr. Emery Walker has written on printing, Mr. Douglas Cockerell on bookbinding, and Miss May Morris on embroidery.

The catalogue also contains articles on stained glass by Mr. Christopher Whall, pottery by Mr. Alfred H. Powell, furniture by Mr. W. A. S. Benson, metal work and jewellery by Mr. R. Ll. B. Rathbone, textiles by Mr. J. H. Dearle, and lace by Mr. Alan S. Cole.

From this excellent series of articles we quote two:—

BRITISH SCULPTURE.

By R. ANNING BELL, R.W.S.

The dignified structural arts of sculpture and decorative painting are unfortunately those in which Great Britain can show least accomplishment in modern times. For various reasons and until quite lately both attention and patronage have been attracted in other directions, and in Decorative painting patronage is still largely to seek. That neglect went on for so long that everybody, even artists themselves, began to assume that such work was foreign to the genius of our nation; forgetting the grand mediæval monumental work which at one time covered England at least from end to end, and of which just enough is left to make us realise the greatness of the artists of those days and how deplorable is our loss. The climate of our islands is often offered as a reason by the modern, but this seems to me a specious and somewhat mean excuse. The British climate is admittedly indefensible, but was it less infamous in the Middle Ages than now? I believe that the knowledge at our command points in other ways. Rain and frost and fog must have been much more frequent in those heavily wooded, undrained, swampy countrysides, making the difficulties of execution more formidable, as well as the durability of results less sure. True, the deluge of smuts with which our industrial system has so lavishly supplied us did not then exist, and it may be also that the shorter life which the action of rain and frost demanded from exposed works of art helped to stimulate production and kept the craftsman more continuously in practice. The leasehold system, English habits of life, a widely diffused and criminal conspiracy on the part of our architects, and nowadays the growing custom of rushing restlessly about in motor-cars instead of the more deliberate and studious travelling of earlier times have all been held to be factors in a situation which we justly lament. Personally I believe that the desire for cosiness, which since the spacious ages has more and more characterised English life, is largely to blame. Cosiness, with all its attractions to our fallen natures, it will be admitted is incompatible with monumental dignity. We have produced excellent tea-table equipages but few triumphal arches.

British sculpture suffered a long decline from the great Gothic centuries to the middle years of Queen Victoria.

There were interesting episodes in the decline, but in spite of much that is characteristic and good I think it may safely be said that Renaissance sculpture in England never reached the level of the Gothic, and it ended in a dreary morass uninspired by nature and but feebly galvanised by the mawkish stimulus of debased classic art. Then a great man arose in England, a great sculptor, painter, and designer, a great draughtsman and scholarly artist. Time can only decide, but many already believe that in Alfred Stevens we had the greatest artistic personality which our race has yet produced. One of the fellowship of the Masters, his work has that elevation of character and massive quality which distinguishes the greatest. His Wellington memorial in St. Paul's and his sketches and models for other monuments and architectural decorations and enrichments created the greatest enthusiasm among the young sculptor students of the early 'eighties. His use of architectural forms in combination with sculpture, his attention to decorative accessories, and the fertility of his invention of such details astonished and delighted the ardent young minds which had been starved by the meagre fare which the official sculpture of the period alone provided. About this time also other things were troubling the waters. Owing to the political adventurers of France several distinguished French sculptors had come to England and begun to teach. An exceptionally good group of students gathered round an excellent master at the Lambeth School of Art, and increased facilities for study were provided. A desire for an increased fellowship and knowledge of each other's work and thoughts inspired a group of young architects, designers and sculptors influenced by Norman Shaw and Morris to found the Art Workers' Guild—a private professional society for spreading knowledge and appreciation of the Arts and Crafts by encouraging discussion of their work and personal knowledge of each other among its members. The value of this society has been immense in destroying the feelings of superciliousness or inferiority which formerly separated the workers in the different arts, and its influence, though little realised by the public, has been very great. The London Arts and Crafts Society was founded soon after, largely from members of this Guild. The result of all this was that sculptors threw aside their aloofness and began to realise, and realise with joy, that their efforts were not necessarily confined to an unrelated statue or bust, but that the range of architectural decoration was properly their work, and that it would provide for many temperaments a scope for original expression which the older limitations could not afford. Minor forms of decoration also attracted their attention, various forms of metal work, jewellery, furniture, and wood-carving were attacked. The tremendous energy and marvellous output of Alfred Gilbert in some of these directions attracted an enthusiasm second only to that for Alfred Stevens. His influence can be traced in every direction, and the stimulus he lent to the movement counted for very much and counts still.

Sculpture in England began to hold up its head and the sculptors to claim their share of the sunshine. To some extent they have been successful. Men of distinction are now constantly employed in the decoration of public buildings, and their pupils and assistants are therefore receiving a training such as would have been unattainable in a former generation. Much, however, has still to be learnt before we arrive at a truly monumental school. The great admiration for the work of Alfred Stevens, which I have already alluded to, seems to have been of the platonic type. At any rate, little work of a virility at all related to his has yet been produced. The need for severe training in the study of the human form, which the young sculptors of the 'eighties felt so deeply, led them to value somewhat overmuch the quality of imitative realism. Instead of sculptors they tended to become modellers. Though accepting gladly and experimenting freely with the opportunities which the renewed association with architecture gave them, they found that many and large problems were before them—problems which their training had not contemplated, and which would need a readjustment of mental attitude and much continuous effort to solve. A monumental style is not so easily acquired as the power of modelling a good nude, but the need for such is recognised, and I think an intelligent search for it may be taken as the characteristic note of much recent work. It may be that help could be given to the students of to-day if less modelling and more carving were insisted on; to work down from the outside of a block of stone may be expected to encourage a greater breadth and simplicity of style than to model up from a slender metal armature in such a plastic material as clay.

At any rate, the leaders of artistic education are quite conscious of this state of things, and are giving much thought to its solution—a solution much less easy in these days of large classes and large art schools than it was in the old days of a few pupils or apprentices and a long and faithful service of one master. But whatever may be thought as to the direction in which English sculpture has been drifting, whether towards realism or towards a more monumental style, there can be no doubt whatever as to the immense technical improvement in the work produced in Great Britain during the last thirty years. Our young sculptors now find at home as thorough and various a training as can be obtained in any part of the world. This fact—that they can obtain at home the equipment that they need instead of being forced abroad to gain the essential knowledge of their craft during the plastic years when alien influences are most readily and permanently impressed—should have a considerable effect on the future characteristics of English sculpture. A nation which, in spite of the constant communication of modern cosmopolitan life, the speediness with which the smallest new idea or suggestion of a new movement is immediately exploited in a thousand publications with their facile methods of photographic reproduction, still retains, as I believe is universally admitted, a marked individuality of its own in painting, architecture, and the applied arts, and must leave qualities which will develop an individuality of its own also in sculpture, given time for the foreign influences gained in early training by one generation to die away. Those who saw the collections of English sculpture recently shown in the only really adequate sculpture gallery in the three kingdoms—that of the Shepherd's Bush Exhibition—will realise that the vigorous young growth of modern English sculpture needs to fear none in technical accomplishment, and may confidently look forward to artistic development of which it itself contains the seeds.

MURAL DECORATION.

By R. ANNING BELL, R.W.S.

The subject of decorative painting in England—painting as part of structural decoration and of a monumental whole—is perhaps the most lamentable which a writer who loves the art of his country can touch upon. It can scarcely be said to exist. The soil is good, the seed is good, but the tender plants have had but little chance of growth or even of a stunted existence. Neglect is their usual portion, or, if they are noticed at all, it is with a bleak disapproval. It is with wrath and shame for our race both as a nation and as individuals that one remembers that artists of the calibre of Rossetti and Watts and Burne-Jones and Albert Moore, men whose natures cried out for the larger scope, have been allowed to leave behind them practically nothing but the lesser children of their genius—their greater were still-born. Even Alfred Stevens was never allowed to paint—he who was as great a painter as a sculptor, whose sense of colour was as fine as his sense of form. The nearest approach to painting was that he was asked to design some mosaics for St. Paul's Cathedral, the magnificent cartoons for which are now among our most precious national treasures. Maddox Brown, with his work in the Manchester Town Hall, may be cited as an exception. But even in his case it was but an afterthought—the room was not designed for the purpose, and his well-known series of historical subjects are placed immediately beneath large windows, where it is with the greatest difficulty that they can be seen. There are a few other cases in which opportunities have been given for the decoration of public buildings. Lord Leighton executed some panels in the South Kensington Museum. The late Charles Furse carried out some spandrels in the Liverpool Town Hall. The new Courts at Newgate have been decorated by artists fortunately still with us. The Houses of Parliament still more recently, a few banks and large business corporations, a few City companies, and such like, have realised the opportunities they could offer, and have allowed them to be used. And there are in private houses here and there scattered about the country examples of effort in the same direction. The appreciative enterprise of a well-known collector gave the late Charles Conder the opportunity of displaying his beautiful and wayward art in the appropriate form of the decoration of a boudoir. Whistler's peacock room is famous, and there are others. But the whole amount is pitifully little when compared with the amount of splendid work which might have been now a proud national possession. There has been, and is, plenty of material; there have been and are now among us artists whose tempera-

ments would best express themselves in mural decoration. Our larger art schools encourage it and diligently train students to carry out such work. Much public money is spent in this direction; that is, in the education of the mural painter, and everybody agrees that it is very properly so spent. Yet nothing is done by a nation which prides itself on being a business nation in the way of seeing that it gets its money's worth, or at least some return for the outlay. There are ample opportunities: the walls of our town halls, our public libraries, our great educational buildings are crying out to be covered. Museums, technical schools, public offices, all have spaces which should be a delight instead of a weariness, and which would be so were an intelligent lead given to public opinion. It is the indifference or the want of thought or the concentration of the average Englishman on his own immediate affairs to the neglect of the wider calls of civilisation which is the cause of this.

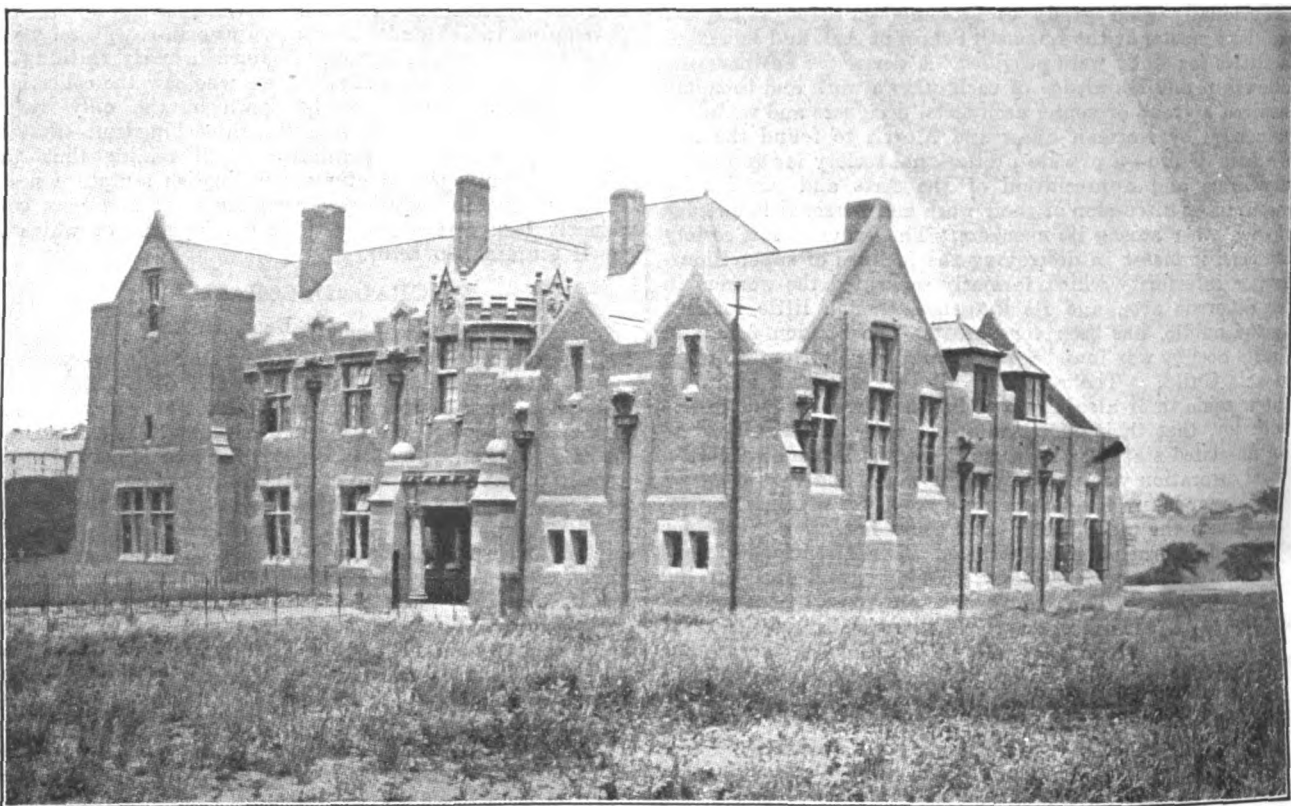
I am quite aware that by no means all of the few attempts made in recent times in the way of mural decoration have been successful, and that the complaint I have made is open to the cheap and obvious retort that plain walls are better than such-and-such an unfortunate example of modern decoration. This sort of attitude would make any progress

PUBLIC BUILDINGS IN NEW SOUTH WALES.

THE report of the Department of Public Works of New South Wales for the year ended June 30, 1912, contains an interesting account of the Government Architect's Branch.

The year's expenditure on public buildings amounted to £724,283 17s. 11d., which sum includes £171,161 4s. 4d., provided by the Department of Public Instruction, and £78,952 4s. 10d. expended on behalf of the Commonwealth Government.

Among the more important of the new works undertaken during the year were the new offices in Sydney for the Public Instruction Department, facing Bridge, Loftus, and Young Streets. The estimated cost of the work now in hand is £65,000. This comprises the first section, covering about one-half the block which will ultimately be built on. The additional accommodation to be provided by these premises is urgently needed, inasmuch as the staff of the Department is now distributed in eight different buildings, located in various parts of the city. Not all of these buildings are Government property, and a payment of between £600 and £700 a year for rent is involved. The



SYDNEY UNIVERSITY—HALL OF VETERINARY SCIENCE.

impossible, and leaves one wondering what sort of a mind it is that willingly spends money on education, but makes that education sterile by refusing to allow it to be productive. It is only in the nature of things that mistakes should be made; it is by the very mistakes made that the lines of progress are demonstrated. Because a generous but ill-advised donor has bestowed upon a public building a piece of work for which we are not grateful, or because a few committeemen here and there have neglected to avail themselves of educated opinion, there is no reason to say despairingly that we cannot do this sort of work, and thus stultify our educational system, and, as I firmly believe, impoverish the future of art in our country.

THE permanent collection of Phil May's work, which has been acquired as a result of the efforts of the Phil May Memorial Committee, was on Monday last formally presented to the Leeds Corporation. Phil May was a native of Leeds, and a memorial tablet in granite with a bronze medallion has been placed at the house in New Wortley where he was born. The exhibition now opened comprises many drawings, and all but four are to remain in the gallery as a permanent collection. One of the four was finished only a few days before his death.

external walls of the new building, which will be seven storeys high, will be of stone; the internal construction, of steel and reinforced concrete.

Good progress was made with the construction of the new offices for the Registrar-General, facing Hyde Park and College Street, although the work has again been delayed by dearth of stonemasons. One wing has been completed, and was put into occupation in December 1911. The expenditure to June 30 was £66,283 6s. 3d., £28,984 12s. 7d. being spent during the year.

A considerable amount of work was carried out in connection with the various University buildings—Fisher Library, medical, agriculture, veterinary schools, &c., of which particulars are given. The Veterinary Science School building (which we illustrate) has been finished and comprises lecture-room, workrooms, classrooms, dissecting-room, post-mortem room, museum, and rooms for professors and lecturers. This building has been constructed of brick with stone dressings and slate roof. Like the recently completed Fisher Library and Union Building, it has been designed with a free treatment of scholastic Gothic. The additions to the Medical School are nearing completion—only the finishing trades remaining to be done, and these are now well advanced.

SOUTH WALES.
Public Works of New
e 30, 1912, contain
Government Architect's

Buildings amounted to
£171,161 4s. 4d.
Instruction, and
the Commonwealth

works undertaken
in Sydney for the
Bridge, Loftus, and
the work now in
st section, covering
nately be built as
provided by them
as the staff of the
different buildings.
Not all of them
and a payment of
is involved. The

Plans have been prepared and submitted to the Parliamentary Standing Committee on Public Works for:—
New Government Printing Office . . . £80,787
New Teachers' Training College . . . 65,475
New Office for Public Instruction Department . . . 65,000
New Hospital at Newcastle . . . 46,154

Plans are now in course of preparation for the following schemes:—

New building for the Depart. of Agriculture	£71,000
Additions to Sydney Hospital . . .	100,000
Central Meat Market . . .	192,321
Freezing and Cold Storage	} New Abattoirs 300,000
Export Slaughter Houses	
New Law Courts . . .	350,000

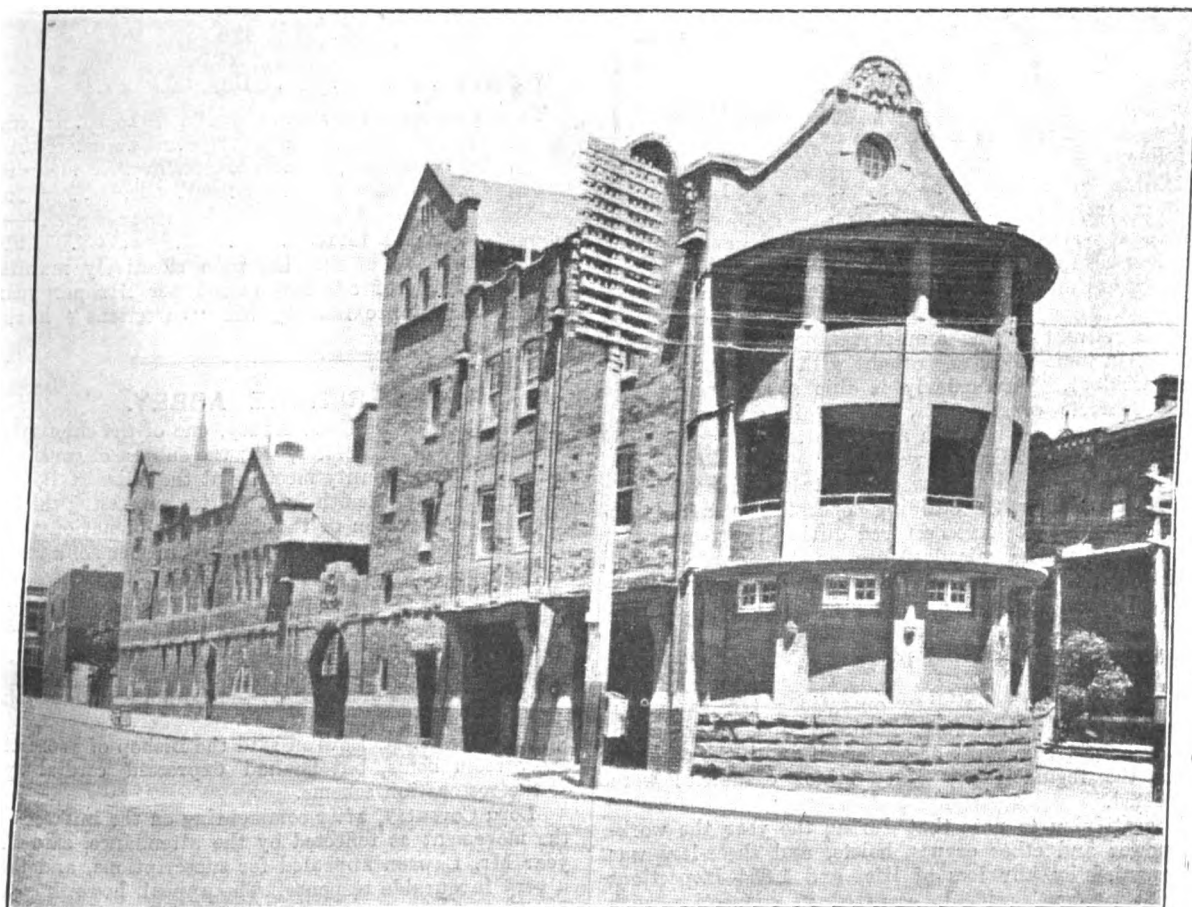
The new Abattoir buildings at Homebush, for which a contract for £158,765 was let in April 1910, are approaching completion, the expenditure to June 30, 1912, being £156,291. The total expenditure on this undertaking, including improvements to site, roads, railway connection, &c., has been £305,501 13s. 9d.

In addition to the above, a large number of buildings in

During the year the cost of labour and building materials has increased about 10 per cent. and 12 per cent. respectively, and in many country districts the cost is further increased, owing to the shortage of building contractors and tradesmen.

The branch was under the control of Colonel W. L. Vernon, F.R.I.B.A., until August 11, 1911, and from that date till May 24, 1912, Mr. E. L. Drew was in charge as acting principal architect. On the latter date Mr. Geo. McRae was appointed Government architect and took over the control of the branch.

The Theatres and Public Halls Act and the Scaffolding and Lifts Act are administered by this branch of the Department, and the report furnished indicates that the requirements of the former have been closely observed, and the large number of buildings and places devoted to public entertainment show marked progress in the matter of public safety and convenience, whilst the strict enforcement of the provisions of the Scaffolding and Lifts Act and Regulations, the careful supervision maintained, and the high standard of safety insisted upon, have resulted



FIRE STATION, DARLINGHURST, N.S.W.

country towns—schools, colleges, police stations, court-houses, post offices, hospitals, &c., were also dealt with.

The ever-increasing amount of building work handled directly by the Department, and the necessity for closer personal supervision of the work of construction than could be given by the Government architect without undue interference with the administrative work of his office, determined the Minister to appoint an executive officer to be responsible for all construction and shop work. Mr. Bruce, an officer of long service and varied experience, was accordingly placed in charge of this sub-department.

The large amount of work which has been put upon the Government architect's branch during the year has necessitated the employment of a number of additional draughtsmen. It has been found a very difficult matter to secure the services of competent men on account of the general activity of the building trades throughout the State.

On account of the rise which has taken place in the price of manufactured articles and raw material, also the rise in wages and the variations in connection with the several wages boards, it has been a matter of some considerable difficulty to estimate the cost of projected works.

in an almost total absence of accident due to faulty or careless construction.

During the year a total of 1,182 detailed reports on plans, &c., and 143 inspections of buildings of all kinds have been made under the Theatres and Public Halls Act, 1908, many of which involved careful analysis from a constructional standpoint, and much alteration and amendment of plans and specifications where the comfort and safety of the public had not been sufficiently conserved.

Marked activity has existed in converting one-time temporary open-air structures into public halls by erecting roofs over same, approximately 100 of these buildings having been so dealt with, complete reconstruction in a large percentage of them having been rendered necessary by increased popularity of moving pictures, and the demand for a better class of building, particularly in the suburbs, in order to cope with the city halls which in many cases have reached a high standard of excellence. Many of the entertainment halls are now of a class not contemplated when the Act first became operative, and at intervals new regulations have been framed in order to successfully cope with unforeseen conditions.

About twenty-five high-class new buildings have been

reported upon and erected during the year under review, a pronounced tendency being evident towards the erection of steel roofs, with clear spaces to obviate the necessity of columns and consequent obstruction of view of an audience.

Among proposed and newly erected theatres and halls may be mentioned new theatre Haymarket, adjoining the Adelphi; Crystal Palace, George Street; Hyde Park Rink, 85 feet roof span; Stanmore Theatre, 90 feet span; Manly Rink, 60 feet span; Mosman Rink, 85 feet span; Balmain Theatre, excellently appointed, and quite equal to the best city buildings; and Manly, three new halls, as giving some idea of the class of building caterers for public entertainment have now to provide.

The past year has surpassed any preceding one in the importance of the work done, if not in the actual number of cases dealt with, and, as far as present indications go, there should be little diminution in the work to be done during the current year.

The number of lifts within the metropolitan area has considerably increased during the year, and now totals 1,510, of which 457 are used for the transfer of passengers. It is estimated that these lifts carry an aggregate total of 68,000,000 passengers a year.

The officer-in-charge under the Scaffolding and Lifts Acts, 1911-12, submits a summary of the year's work in connection with the administration of these Acts.

Under the head of "Scaffolding and Hand Cranes" 1,365 notices of Intention to Erect were received during the year as follows:—

Scaffolding	1,015
Hand cranes	350

Effective supervision has been maintained, and little difficulty has been experienced in securing conformity with the requirements of the Acts, and the directions issued by the inspectors.

With the advent of the semi-skyscraper building construction is, in some measure, fraught with increased possibility of accident. Particularly is this so in regard to steel and concrete construction, and it is gratifying to note that in most cases builders are alive to their responsibilities in the safeguarding of workmen.

It is impossible to altogether eliminate the risk of accident in connection with building operations, and the majority of those that have occurred during the year were due to carelessness or misadventure on the part of the person injured. In only one case was injury caused through collapsed scaffolding. This accident was caused by the unusual and unnecessary concentration of six men on one portion of an internal plasterers' scaffold, causing a "ledger" to break.

In connection with building operations ten fatalities occurred, none of which were, however, due to defective scaffolding or gear, or want of conformity with the requirements of the regulations. Sixty minor casualties were also reported.

It is gratifying to note that during the year the working of power and other cranes, hoists, and sheer-legs was unaccompanied by any loss of life, and 1,854 inspections were made. Seven accidents occurred in connection with cranes and hoists.

The number of cranes erected were:—	
Steam cranes	3
Electric cranes	20
Hand cranes (not on buildings)	16
Steam hoists	15
Electric hoists	52

A strong stand has been taken in regard to ensuring a sufficient margin of safety in regard to crane gearing and framing, and it is admitted that the standard set down in this State is higher than British manufacturers have hitherto adopted. This standard is being in all cases insisted upon, although it often brings the branch into conflict with crane suppliers and builders of long standing. Overload tests have, in a number of cases, revealed weaknesses that have hitherto been unsuspected, but the results obtained can only tend towards increased confidence in the machines and safety for the employees.

Owing to the different types of crane gear coming within the certification clauses of the Act, it has become imperative that new regulations dealing with crane-drivers' certificates be proclaimed. These have been prepared, and it is hoped will shortly have the force of law.

This year's operations have established a record in respect to the erection of lifts, the total number erected being 200, of an approximate value of £120,000.

Of the new lifts twelve represent conversion from hydraulic to electric power. Nine lifts were dismantled for various reasons, and re-erected.

The following table shows the number and types of lifts erected during the year:—

Hydraulic passenger	3
" goods	15
" whips	3
— 21	
Electric passenger	74
" goods	65
" service	16
" whips	12
— 167	
Belt-driven goods	6
" service	2
" whips	4
— 12	

In detail, the lifts in commission in the Metropolitan area are:—

Type of Lifts.	Hydraulic.	Electric.	Belt-driven.
Passenger lifts	173	283	1
Goods lifts	496	207	90
Service lifts	24	62	8
Whips, &c.	106	28	32
Total passenger lifts			457
" goods			793
" service			94
" whips, &c.			166

Grand total 1,510

The inspection of lifts has been effectively maintained, and an average of 5.9 inspections per lift per year has resulted, and approximately 900 "directions" have been served.

PERSHORE ABBEY.

THE condition of Pershore Abbey, one of the chief treasures of the county of Worcester, was the subject of consideration at an influential county meeting at the Shire Hall, Worcester, on Saturday, the 6th inst. After expressing the opinion that the preservation of the Abbey was of national importance, the meeting decided on the appointment of a committee to raise the necessary funds. A full statement as to the repairs needed and the amount of money available was submitted by the Vicar of Pershore (the Rev. F. R. Lawson) and others, the following account of the meeting appearing in the *Birmingham Daily Post*:

The chair was occupied by the Lord Lieutenant (the Earl of Coventry).

The Rev. F. R. Lawson said the Bishop of Worcester was away from home, but he had expressed cordial approval of the restoration scheme.

Lord Coventry, after commenting on the interest taken in the movement as reflected by the attendance, said that last year Mr. Lawson appealed for subscriptions, and there was a very favourable response. The appeal, however, was made locally. After the commencement of the work it was found that the cost of restoration would be far in excess of the sum which was originally contemplated. The architect reported that the structure was in a very serious condition, and a very large outlay would be needed to restore it. Mr. Lawson and many who thought with him were anxious to make an appeal to the county to help them to carry out this very important work. His lordship thought the proposal would commend itself to many antiquaries in the county and to all those who loved the beautiful landmarks which they were so anxious to preserve. He was sure that all who saw the ancient Abbey Church at Pershore could not fail to admire its beauty.

The Damaged Vault.

The Rev. F. R. Lawson, in submitting the report of the architect (Mr. Harold Brakspear), said that of the work which was first found to be necessary for the security of the tower and the Norman south transept, two parts were either completed or just nearing completion. As the report showed, there was such serious danger that it was felt only right to close the church for public worship. Mr. Brakspear reported that he found that ribs in a portion of the vaulting were loose and might fall at any moment. There was no reason to suppose that the rest of the vaulting was not in an equally critical condition. He also reported that the heads and sills of the clerestory windows were cracked, and that there were a number of other cracks, both in the vault

and ribs, most of which had opened afresh, indicating that the vault was still moving outwards. Since the vaulting was cleaned about 1860, the north wall alone had gone outwards over half an inch, and the south wall seemed to have gone to a greater extent. Another very serious matter was the condition of the roof over the vaulting. The immediate repair of the roof and vault and the prevention of further movement were urgently necessary. The architect added that the vault must be prevented from further spreading, which could only be effected by strengthening the buttresses. The clerestory walls were virtually upright at the first pair of piers and against the tower, but between these points both walls had moved out. After the buttresses had been strengthened the vault must be repaired. The ribs which were so dislocated as to be dangerous must be carefully taken down and reset.

Mr. Lawson added that the committee decided to seek the opinion of Professor Lethaby, and in his report Professor Lethaby stated he entirely agreed with Mr. Brakspear's view that the most serious cause of the trouble with the vaulting of the church was to be found in the fact that the heavy roofs, never very well constructed, bore directly on the vaults, which were being badly crippled. These roofs should be raised clear of the vaulting, as proposed by Mr. Brakspear, and the stone vaulting should be repaired. Mr. Lawson further observed that of the original £2,000 asked for they had raised over £1,500, which was nearly sufficient to cover the work already carried out, or was being carried out. In consultation with the architects they were distinctly told that in order to make everything secure they ought to obtain no less than another £3,000—or £4,500 in all.

Lord Cobham proposed:—

"That this county meeting being of opinion that the Abbey Church of Pershore is an ancient historical monument, its preservation is of national importance, and is of opinion that strenuous efforts should be made to secure it."

The resolution, his lordship said, was tantamount to asking the county to put its hand into its pocket and provide funds for the preservation of a noble monument of the piety and devotion of their forefathers. As was properly said in the resolution, it was a national historical monument. He claimed on behalf of Worcestershire that they had done pretty well in regard to their beautiful buildings. They had the cathedral at Worcester, and the money expended upon that building far exceeded, he thought, that spent upon any other similar building throughout the length and breadth of the land. He had made it one of his recreations to visit cathedrals and churches, and it was his belief that much of the work in the Abbey Church at Pershore was, if not unequalled, at all events unsurpassed in this country. They had beautiful Norman work, early English work, and late Decorated work. There was no question of restoring any of the work; it would be all purely preservative work. They were in the hands, so far as he could control the expenditure, of a safe man in the Vicar of Pershore, who had a wide knowledge of ecclesiastical architecture. He was sure the work would be done in a reverent, judicious, and truly conservative spirit.

Mr. Willis Bund, who seconded the resolution, alluded to the passing through Parliament of the Act providing for the preservation of ancient monuments, and said the Act made the County Council a sort of go-between with regard to the Commissioner of Works and the owners of buildings. It was said that the County Council should receive subscriptions towards any ancient monuments, and he could say that the Worcestershire County Council would rejoice to receive any subscriptions towards the preservation of Pershore Abbey: he hoped they would be numerous. The Board of Education wrote stating they ought to encourage a knowledge of local history and utilise to the most the objects of interest in the county. Pershore Abbey was certainly an object of interest. He thought that from the educational side the Abbey was of great importance. He believed some of the monastic enthusiasts said at one time that it dated before Christianity was introduced into this country. It became a Benedictine abbey, and was built on the ordinary Benedictine lines. Probably to suit altered ritual it was rebuilt. There were fires in the thirteenth century, and the rebuilding then took place. Then they came to what was really the interesting thing. Some architect certainly came down who did some work at Salisbury and possibly at Lincoln. It was a very remarkable thing that certain architecture was introduced into these places which was not seen elsewhere. It seemed to him to be a thousand pities or a sin against the enlightenment of the time if what was really

unique in the history of architecture connected with Salisbury, Pershore, and Lincoln should in any way be destroyed or not maintained. It was not really a county matter; it was national, and he thought they should make an appeal of the strongest possible kind to all lovers of architecture throughout the country. In the development of English architecture he looked upon Pershore as unique. It would be a disgrace to our modern learning and civilisation to lose the church, and he felt certain if the appeal was properly made it would not be made in vain.

It was announced by Mr. Hunt (secretary of the local committee) that the total amount received on the first appeal was £1,520.

The County's Inheritance.

The Archdeacon of Warwick moved: "That in order to raise the necessary funds to secure the preservation of this historical monument the following committee, with power to add to their number, be appointed to take such steps as they may deem advisable for that purpose: The Earl of Coventry, Earl Beauchamp, Viscount Cobham, Lord Hampton, Sir Richard Martin, Bart., Sir Charles Swinfen Eady, the Archdeacon of Warwick, Mr. Willis Bund, Councillor Wilson, Mr. H. Whiteley, General Davies, Mr. James Ashwin, Mr. G. F. Chance, Mr. C. W. Dyson Perrins, Mr. Spencer Churchill, together with the Vicar and churchwardens of the Abbey Church and Mr. Hunt, the secretary of the local committee." The Archdeacon said that if they were to save the church they must act swiftly and together.

Mr. Justice Swinfen Eady, in seconding, said there could be no question with regard to the urgency of the work. What was proposed was no work of improvement; to his mind the word "reparation" was more suitable. It had been said the work was of national importance; no doubt it was. The country was rich in abbey churches, and the great inheritance which Worcestershire had received carried with it responsibilities. The county should not be backward in maintaining the beautiful edifices received from past generations.

The resolution was carried.

The Dean in proposing thanks to Lord Coventry, said the relations between the Prior of Worcester and the Abbot of Pershore had not always been of the most amicable character. He felt, however, when the successor of the Abbot of Pershore was in difficulties in regard to his church it was only right that the successor of the Prior of Worcester should come forward and express his desire to assist his brother in the time of adversity.—Judge Amphlett seconded.

Lord Coventry, replying, expressed the hope that the result of the gathering would be to bring about the preservation of the church and the restoration of that portion effaced by the ravages of age.

BOARD OF EDUCATION ART EXAMINATIONS.

IN publishing the lists of successful candidates in the Art examinations, 1913, together with the reports of the examiners, the Board of Education call attention to the fact that these examinations are the first of a new series announced by them in the summer of 1911, and differ considerably in character from the examinations held in past years. The old examinations in many cases provided tests of a very elementary standard, such as, in the opinion of the Board, can best be supplied by teachers of art to their own students as part of the ordinary routine of instruction in the schools; and even when they were of higher standard each of them covered only a small sub-division of one branch of art. The new examinations are of a more comprehensive character, adapted to the needs of students who have reached a fairly advanced level in their studies, and who may reasonably desire to have their individual progress tested, in some such way as is open to students of other subjects by means of the various external examinations conducted by universities and other bodies.

The Board regret to find that their examiners, amongst whom were experienced teachers in schools of art, are not able to report more favourably on the general standard of merit reached by the candidates, especially in the subject of drawing. They have reason, however, to believe that many of the best students have been judiciously advised by their teachers to defer entering for the new examinations until 1914, and they look forward with some confidence to better results in that year. In the meantime, they do not doubt that teachers in schools of art will carefully study the reports of the examiners, and take such steps as are indicated by the criticisms and suggestions made by them, as

regards the organisation of the schools and the methods of instruction.

We give below extracts from the reports of the Examining Committees:—

EXAMINATION IN DRAWING.

The examination of candidates in grouped cognate tests, it was hoped, would tend to raise the standard of work above that reached in former years.

It is true that there are fewer competitors; but the general level of attainment, in the life drawings particularly, is somewhat lower than in recent years.

Drawing.—Comparatively few of the life drawings could be considered sound. Those which the examiners regarded as moderately good ones, in common with a large majority of drawings that have not satisfied the examiners (being weaker in other respects, such as construction and evidences of a knowledge of form), left much to be desired as far as the attachment and drawing of the extremities is concerned.

The antique drawings are perhaps a trifle better than the life drawings. In some instances fair antique drawings are found in groups where the life drawings are quite immature. This would point to the fact that the students have had little or no practice in drawing from the living model, or insufficient opportunity of such practice, or that the master is not competent to teach that branch of his work, in the opinion of the examiners much the most important.

Only a few of the memory drawings of the antique and of natural objects can be considered good.

Perspective.—As a whole the candidates' exercises are good. One or two are excellent; and, although there are several that are indifferent and a certain number that are bad, it may be concluded from the fact that the good and fair exercises are in excess of the poor and bad ones that the teaching generally is good. The drawings, with a few exceptions, are correct and carefully done, and show a knowledge of the working out of ordinary problems in perspective.

The drawings in Exercise 1, Section A, are good in most cases. The drawings in Exercise 2, where a circle is inscribed in a square placed at an angle (through 16 points) fail in the drawing of the circle itself. Though the points are correctly found, the curve is not continuous and even.

Several of the drawings in Exercise 3, the "Chess-board" problem, are quite good and show interest.

In Exercise 4, showing the cast shadows and reflections of a wedge-shaped block and post, the drawings are generally satisfactory, although drawings in monochrome would have been preferred to drawings in varied colours.

Exercise 5, Section B.—Many of the drawings are careful and good; where failures occur, it is through indifferent drawing of the archways, and exaggerated angles. It requires a certain amount of practice to draw circles and other curves in perspective: it is not sufficient to find the guiding points only.

Architectural Drawing.—The test in architectural drawing is directed, in the first place, to architectural draughtsmanship—namely, the power of clean, decisive delineation in respect of building and its ornament, such as was practised, to take an obvious example, by J. M. W. Turner; secondly, to knowledge of dimensional architecture and of the relative connections that exist between plans, section, and elevation; the knowledge, for example, that conditions the art of the Dutch masters, and that every decorative artist must have at his fingers' ends.

As to the former, architectural draughtsmanship, a fair competency has been shown in the exercises sent in. The use of the pencil-point for the conventional rendering of the boundaries of architectural masses and the delineation of ornament has been usually understood; and, in the second half of the paper, the conventional relations that flat-plane drawing establishes between plans, sections, and elevations have been recognised. There are instances of slovenly line, and the faculty of a sharp, clean, decisive stroke has not been developed; but, in view of this being the first examination on the new system, preparation for it seems to have been made in the right direction.

As to the knowledge of the orders, less progress has been made. Generally, the proportions of the column have been grasped, and less certainly those of the entablature, but the facts of columnar and ornamental relief have most often not been recognised, and in the second part of the paper it is clear that in most cases the candidate has had no definite conception of solidity in his drawing of the architectural items; they have been to him simply patterns. In the preparation for the drawing of architecture it would be well

for students to be set down before actual subjects—buildings that they can survey and measure and make drawings from.

No candidate attempted to show technical construction. Knowledge of architectural construction is not asked for in this paper, and no credit is given on account of it.

EXAMINATION IN PAINTING.

The examiners are of opinion that, taken as a whole, the exercises worked in the tests are not altogether satisfactory, and they hope that next year much better work will be apparent in the tests in drawing from life, painting from life, and figure composition.

Drawing from Life.—While in some cases drawings from the life are good, they are often feeble, not only in recording a correct statement of the outline, but in construction, character, knowledge of light and shade, and pose.

Painting from Life.—In the paintings executed in this test, with one exception, the same faults are apparent, with added defects in colour (in some cases quite bad). When to poor drawing is added bad colour, a work has nothing to redeem it.

There was an imperfect perception of the delicate qualities of colour which prevail in the half-tones and shadow on flesh. This defect was frequently most conspicuous in the paintings in which the surface modelling had been carefully studied.

Figure Composition.—There is room for great improvement in the work done for this test.

There was little seen that was really interesting in composition, refined in colour, and decorative in feeling, but much that was positively bad, vulgar, and trivial, not only in design, but in colour and outlook.

Most of the compositions suffered from overcrowding and from monotony of tone.

A failing most noticeable in all the works sent up is that the colour schemes are not treated with a sufficiently decorative outlook, so as to be in sympathy with their surroundings, and still form the dominating note.

It is always better in compositions of a decorative nature, placed to be seen above the eye-level, that the figures, while filling the panel, should be as few as is compatible with the size of space that is to be filled. This, together with an appreciation of constructional qualities of light and shade, is a most important element in this form of art.

The accidents of light and shade, as naturally seen, should not be emphasised; but the mother colour of each individual mass, whether it be flesh, drapery, or sky, should retain the local colour throughout, as is well exemplified in the works of Uccello and Hans Holbein.

The examiners, while taking into consideration the severe and difficult nature of this test, which is largely experimental, were naturally prepared for some disappointment; but they look forward to better results after consideration by the students of the recommendations made in this report.

MODELLING.

The examiners feel that in the first year of a new scheme it would be hardly fair to accept the works submitted as a criterion of what is to be expected in the future.

Of the few candidates presenting themselves the examiners consider that only one reaches the standard that can be recommended for a pass. This candidate gained distinction.

The examiners wish to emphasise the importance of the tests in figure composition and in modelling the figure from life, and to point out that a high standard of attainment has been insisted on in both subjects.

On the whole, the candidates' papers on the history and methods of sculpture were of a high standard. In one case, however, a candidate had obviously failed to realise that a certain standard of general education is essential in the career he had in view.

PICTORIAL DESIGN AND INDUSTRIAL DESIGN.

The number of candidates this year, alike for the examination in pictorial design and for that in industrial design, is but small. This, however, owing to the change in the conditions of examinations, is perhaps not surprising.

The examiners have been struck by the fact that at both examinations the written answers to examination questions have been very much better, as a whole, than the executive work submitted to them. The examiners wish to call special attention to this fact, which they deplore; and to state that, while giving to written answers every credit, they have not allowed the goodness, or even the excellence, of these to qualify a candidate to pass the examination when his executed work has been generally bad.

Pictorial Design.—The work submitted in the examina-

tion in pictorial design is in many ways satisfactory. The knowledge of the figure shown is creditable, and some of the landscape sketches are excellent. The more ambitious designs for posters, however, are disappointing, both in idea and execution; and the lettering almost throughout is poor, or often, indeed, bad. In black-and-white designs, intended for reduction, in many cases sufficient thought has not been given to the value of what the lines would be, when so reduced.

Industrial Design.—To pass to the examination in industrial design, and, first, to those crafts which involve modelling.

Here the work, as a whole, was disappointing both as to quantity and quality. Almost throughout there appeared no sufficient consideration of the material in which an object was finally to be executed. The modelling of the tiles, for instance, was in too high a relief; and the designs for vases and wood-carving were clumsy to a degree. It is difficult to understand why in this section, considering the number of good students in it to be found in the schools, there should be so few candidates, and the standard of their work should be so poor. Those who did submit work would appear to have been in too elementary a stage to sit for the examination at all. Exception, however, must be made in favour of one design for an enamelled alms dish, which, alike in its invention and in the knowledge shown in its working details, is excellent.

The few drawings sent in for stained glass are extremely poor. Except possibly in one case, they give little evidence of any apprehension of the principles and resources of this art.

As regards iron work, only two exercises were sent in. They are fair; but in each of them the design is appropriate rather for a large gate than the small one asked for; and, contrary to the specification, they both give the appearance of being meant to open in the middle.

Of cabinet work there are three designs. They are competent, and the working drawings are very creditably done.

Of wallpaper designs there are two. One is pleasing, but wholly imitative; the other is poor and ugly.

The subject for the original design in painting and decorating was a frieze with shields. Here, again, but few exercises were sent in and those ranged from poor to bad. The heraldry, an important feature, is in no case well understood.

Passing from the worked to the written exercises, in respect of the paper on "The History and Styles of Ornament," the examiners note:—

(a) That little knowledge is shown of the meaning or purpose of the abacus; (b) that only in rare cases is the bell shown as a feature of Corinthian capitals; (c) that, as a rule, the general characteristic silhouette of the capitals as a whole is not so well understood and appreciated as are mere details of foliage, &c.; (d) that many candidates take examples of several animals or flowers instead of, as asked for, tracing one such through its architectural and other developments; (e) that hardly any candidate gives a complete set of the constructional forms of the scroll. In several sections no candidates offered themselves at all—e.g., in lace-making, tapestry, inlay, and mosaic.

REINFORCED CONCRETE WALL* FOOTINGS AND COLUMN FOOTINGS.*

1. *Preliminary.*—Footings form an important element in the design of masonry structures. The two forms of footing most commonly used may be named the wall footing and the column footing, the former projecting laterally on the two sides of a longitudinal wall and the latter extending in four directions from the base of a column or pedestal block. It is usually assumed in the design of foundations that the earth conditions are such as to make the upward pressure on the footing uniform over its surface. Wide differences exist in methods of designing, due to differences in the assumptions made with reference to the structural action of the footing. It is not strange that these differences exist, since little or no experimental data are available which apply directly to the conditions of footings. Relatively short and deep beams and slabs under heavy uniform loads, with the supporting pressure largely concentrated at the centre of the structure, may not be expected to give the same results as have been obtained in tests with the more slender beams and slabs and with the

methods of support and of application of load which have generally been used in tests. With the present extensive application of reinforced concrete to footings, especially in connection with tall buildings carrying very heavy column loads, a more definite knowledge of the structural action of footings has come to be of importance. It is appreciated that the tests herein described are applicable only to a limited field, but they are offered as a contribution on a subject in which little experimentation has been done.

It may seem strange, considering the wide variations in practice, that few failures of footings have been publicly reported. It must be remembered, however, that these structures are out of sight, buried deep in the earth without opportunity for inspection. A failure in a footing may effect a change in the distribution of the load over the bed of the footing, resulting only in increased settlement. Possibly many instances of undue settlement of buildings may be due to failure in the footings. Possibly, in other cases, the earth at the centre of the footing may be able to take the increased load under the conditions of side restraint developed. It is also probable that many footings have been made unduly strong.

2. *Acknowledgment.*—The investigations were made in the Laboratory of Applied Mechanics of the University of Illinois as a part of the work of the University of Illinois Engineering Experiment Station.

3. *Scope of Bulletin.*—The tests of 114 wall footings and 83 column footings are described in the bulletin. The wall footings were 12 inches wide, generally 5 feet in length and 12 inches in depth or 10 inches to the centre of the reinforcing bars, with a 12x12x12-inch stem in the middle to represent the wall through which the test load was applied. The wall footing rested on a bed of springs arranged in such a way as to approximate conditions of uniform upward pressure on the bottom surface of the footing. A variety in method of reinforcement was employed to throw light on the development of tensile stress in the steel and on the resistance to bond, diagonal tension, and shear. Tests of brick footings, unreinforced concrete footings, and footings having I-beams encased in concrete were included in the investigation of wall footings. The column footings were 5 feet square and generally 12 inches thick or 10 inches to the centre of the reinforcing bars, and had a 12x12x12-inch pier built over the middle through which the load was applied. The column footings also were tested on a bed of springs which gave conditions approximating those of uniform upward pressure. Variety was given to the amount and method of reinforcement and to other conditions with a view of determining the structural action with respect to tension, bond, diagonal tension, and shear, and to give information which would bear upon methods of calculation of stresses. It is thought that these are the first experimental tests on column footings, and probably the first on wall footings on a bed of springs. Analyses are given of the stresses in wall footings and column footings and methods of calculation are discussed, and compared with the results of the tests.

4. *General Theory.*—In wall footings and pier footings the weight or load is applied vertically through the wall or base block or pier, and the upward bearing pressure of the soil (which may also be called the load, since its amount and distribution determine the stresses) supports this weight from below. The usual assumption on which design of footings is based is that the soil pressure is uniform over the bed of the footing. Before uniformity of pressure on the footing will obtain, the footing must bend to the amount and form which would be caused by a uniformly distributed load. The assumption of uniform pressure is warranted if the earth layer is an elastic compressible soil of considerable thickness and of not too high a modulus of compressibility, as under these conditions the amount of bend of the projection of the footing is slight in comparison with the amount of compression of the earth. Also, in soft soils which flow laterally, as in a so-called floating foundation, the settlement and changes in the soil will produce conditions approximating uniform pressure. Where the bed is rock the pressure will be transmitted more nearly directly from the wall or pier to the rock, and as the projections of the footing have little opportunity for being bent upward this portion of the footing may be expected to take only a small part of the load. This lack of uniformity of distribution of pressure is more likely to be present with reinforced footings than with the less flexible unreinforced footings which would carry the same load.

The principles of beam action are, in general, applicable to wall footings, but not so fully to column footings, which partake more of the nature of slabs. The formulas for calcu-

* Abstract of Bulletin No. 67 of the University of Illinois Engineering Experiment Station. By Professor Arthur N. Talbot.

lating stresses in reinforced concrete beams have been treated in Bulletin No. 4, "Tests of Reinforced Concrete Beams: Series of 1905," and in Bulletin No. 29, "Tests of Reinforced Concrete Beams: Resistance to Web Stresses." The principal formulas for beam action in rectangular beams reinforced for tension only, as used in this bulletin, will be repeated here.

The resisting moment of the reinforced concrete beam is (see Bulletin No. 29, page 6)

$$M = Afd' = Afjd \quad \dots \quad (13)$$

where A is the area of cross section of longitudinal reinforcement, d is the distance from the compression face to the centre of the longitudinal reinforcement, d' is the distance from the centre of the reinforcement to the centre of gravity of compressive stresses, j is the ratio of d' to d (which, for the beams of this bulletin, may be considered to vary from .82 to .92), and f is the tensile stress per unit of area in the metal reinforcement.

The formula for the maximum vertical shearing unit-stress in the concrete in any vertical section is

$$v = \frac{V}{jbd} = \frac{V'}{bd'} \quad \dots \quad (18)$$

where V is the total vertical shear at the given section (equivalent to the resultant of vertical forces on one side of the section considered), and b is the breadth of the beam. This formula neglects any horizontal tensile stresses in the concrete.

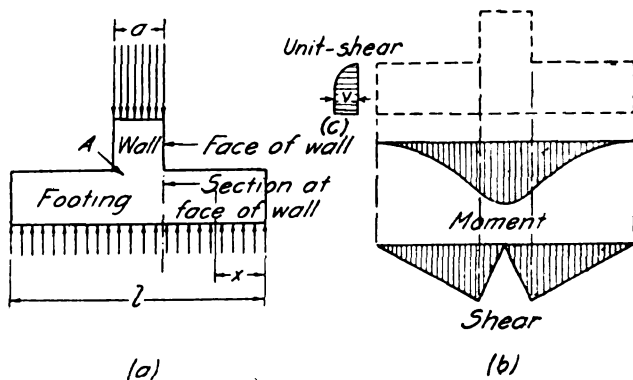


FIG. 1.

The formula for bond unit-stress in horizontal reinforcing bars is

$$u = \frac{V}{m \phi d'} \quad \dots \quad (17)$$

where ϕ is the periphery of one longitudinal reinforcing bar, m is the number of bars, and the other symbols are as used before. This formula neglects any horizontal tensile stresses in the concrete.

These formulas were derived for certain assumed conditions in the beam. Since it is convenient to use them as a means of comparison for conditions other than those assumed, as, for example, when the bars are bent up at the end, the values obtained from these formulas will sometimes be referred to as nominal vertical shearing stresses and nominal bond stresses.

The value of the maximum diagonal tensile unit-stress in any section when tensile stresses exist is

$$t = \frac{1}{2}s + \sqrt{\frac{1}{4}s^2 + v^2} \quad \dots \quad (19)$$

where s is the horizontal tensile unit-stress existing in the concrete and v is the horizontal or vertical shearing unit-stress. The direction and amount of this maximum diagonal tensile stress will vary with the relative values of s and v . In general, it may be said that in the ordinary reinforced concrete beam the value of t probably varies from one to two times v . This applies to the parts where tensile stresses exist in the concrete. Where the tensile strength of the concrete has been exceeded, it is customary to use the same formula.

It is evident that the value of the diagonal tension is generally indeterminate. No working formulas are available. For this reason it is the practice, now becoming nearly universal, in beams without web reinforcement to calculate the value of the vertical shearing unit-stress v , and to use this as the measure or means of comparison of the diagonal tensile stress developed in the beam, with the understanding, of course, that the actual diagonal tension is considerably greater than the vertical shearing stress. It has been found

that the value of v developed in beams will vary with the amount of reinforcement, with the relative length of the beam, and with other factors which affect the stiffness of the beam.

5. *Analysis of Wall Footings.*—Fig. 1 (a) shows a wall footing and a typical set of external forces acting upon the footing. In the discussion, the stem or pier above will be called the wall and the remainder the footing proper. The projecting portion of the footing will be called the projection.

The bending moment at a section of the footing x distant from the end (calling w the uniform upward pressure per lineal foot of length of footing for a given width of section) is

$$M = \frac{1}{2}wx^2 \quad \dots \quad (22)$$

For a section at the face of the wall, the bending moment will be

$$M = \frac{1}{8}w(l-a)^2 \quad \dots \quad (23)$$

where l is the extreme dimension of the footing and a is the thickness of wall. For a section through the middle of the wall, assuming the load to be distributed uniformly over the wall, the bending moment will be

$$M = \frac{1}{8}w(l^2 - la) \quad \dots \quad (24)$$

The variation of the bending moment along the footing is shown in fig. 1 (b).

Although the maximum bending moment is shown by the above analysis to be at the section which passes through the middle of the wall, the resisting moment of that section will be far greater than that of a section of the projection of the footing in those cases where the wall and footing are poured at the same time or where they are well bonded together. Even with a weak bond the horizontal shearing stress at the junction of wall and footing will, in footings of the ordinary proportions, be so small that the combined section may be expected to act together. Besides, the pressure from the wall, instead of being distributed as shown, will be concentrated to some extent on the footing near the faces of the wall, as at A, fig. 1 (a), and this will act to reduce differences of moment. Altogether, it may be expected that the section at the face of the wall will be the critical section for bending moment and resisting moment, and that equation (23) will express the value of the critical bending moment as closely as may be determined by ordinary analysis.

Fig. 1 (b) shows also the variation in the external vertical shear V over the length of the footing for uniform loading. The theory of beams gives a distribution of the intensity of the vertical shearing stresses throughout the vertical section which is represented in fig. 1 (c) and is more fully discussed in Bulletin No. 29, page 9. Due to a concentration of pressure near the face of the footing, as at A, fig. 1 (a), and to the transmission of pressure diagonally therefrom in a manner which is analogous to arch action (as is also

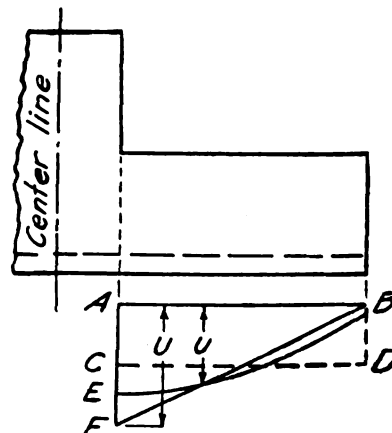


FIG. 2.

to be found in short simple beams), it may be expected that at vertical sections near the wall the vertical shearing stresses will be greater in the compression portion of the vertical section and less below the neutral axis than is given by the beam analysis of Bulletin No. 29. This modification of the distribution of the vertical shearing stresses may be expected to reduce the amount of the diagonal tension stress developed near the wall, and the position of the critical section for diagonal tension failure may be expected to be away from

the face of the wall. The values of the vertical shearing stresses given in this bulletin as a means of comparing or measuring the resistance to diagonal tension in the wall footing tests are based upon a section distant d from the wall (a section which is shown to give reasonable values), and the vertical shear V at this section is used in equation (18). A comparison with the values at a section at the face of the wall will also be made.

The bond stress between the surface of the horizontal reinforcement and the concrete will also be affected by variations from true beam action. By equation (17) the bond stress is a maximum at the face of the wall as represented by the line AF in fig. 2, and decreases uniformly toward the end of the beam, as shown by ordinates to the line FB, becoming zero at B. Due to the deformations accompanying the stretching of the steel under the wall and to the relative deformations necessary to develop bond between the steel and the concrete, as well as to variation from true beam action, the bond stress will not follow the ordinates to the straight line. It seems probable that the bond stresses developed are less at the face of the wall and greater at points farther out from the wall than is indicated by the analysis. It would seem that the bond stress will be expressed by some such line as the curved line EB, of the figure. This distribution is different still from the uniform bond stress indicated by the dotted line, which is based upon length of embedment and total amount of surface, a method assumed by some in such calculations. The distribution of the load may also affect the bond stresses. However, although the true bond stress at a section at a face of the wall may be expected to be less than that given by the ordinary beam analysis, in the absence of a better method it seems best to use equation (17) for the calculation of bond stresses.

(To be continued.)

SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.

THE thirty-sixth annual report of the above Society deals in its introduction with a pressing question of the day, viz. the incorporation of old work into new buildings with which they have no connection. This subject was alluded to in one of our "Notes and Comments" last week. The "Introduction" is as follows:—

In our last report we recorded that Tattershall Castle had been saved from destruction at the hands of dealers in antiquities, but since then many old houses have been stripped of their fireplaces and other valuable fittings. A remarkable feature is that these acts are the result of the delight taken in the beautiful handiwork of the past. Man learns to love the work of his fathers and expresses this love, not by protecting it, as might be expected, but by drastic interference with that work. By such interference he defeats his own end, for, instead of allowing it to retain its full value, the work loses, considerably, in interest. It is a most distressing sign to find that the trade in old houses and the fittings of old houses is rapidly increasing. The Committee is anxious to impress upon the members of this Society the need for their personal help to expose the folly of this trade.

At first sight it appears that the blame should rest entirely on the dealers, but this is not so. The real fault lies with those who are willing to pay sums of money, often very large sums, for the fine parts of old houses, in order to incorporate these in the inappropriate surroundings of their own homes.

Once this fact is realised by the public it will be seen that those who buy such things cannot have a genuine regard for the beautiful works of the past ages, as every house robbed of its fittings is a house spoiled.

We cannot expect anything else of the tradesman dealer than that he should seize the tempting opportunities which are forced before him, by the ignorant, to his great benefit. He is "out for money." Money he will make where he legally can. It is foolishness to blame him.

Those who have a true knowledge of the value and beauty of ancient art, and who have a desire to own examples, satisfy this desire by buying old buildings for their use, and by keeping them in repair when they possess them. Such action shows true appreciation.

But what of the man who wishes to live where there is no old house and who wishes his house to be beautiful? His case is easy. Let him build for himself a new house on his chosen site, let him have it made a fine example of the architecture of to-day, as did the people who built and designed the old houses. In this way he will show a real

understanding of the nature of beautiful things. He will not have destroyed, mutilated, or spoiled anything; he will have created a pleasure for himself, his friends, and for the men and women who come after him, and will have encouraged contemporary craftsmanship.

It is not too strong to say that only the uneducated, only those who have no instinct for beauty, can find it possible to encourage the spoliation of existing and often very ancient art by having one house stripped of its possessions for the very doubtful benefit of another.

There are some who believe that the way to put an end to this vulgar traffic is to forbid it by law.

This is certainly a way, but the multiplication of laws is an evil, though sometimes a necessary evil, and the Committee believes this course will not be required if public opinion can be roused to see the folly of such trading, and it trusts the members of the Society will strain every nerve to combat this evil. It should be explained to those who are less well informed that by buying the beautiful things taken from one old building they are encouraging the salesman to despoil yet other buildings. It should be suggested that by the employment of the modern designer and artist as fine work may be produced now as ever has been. Again, people forget that old work put into a new house seldom results in anything but discord—some have never had sufficient sense of the fitness of things to feel this. If a house is to be a harmonious whole, it should be designed for its purpose. Then it will be a success both practically and artistically. But by following the method we deplore, it becomes more like an old curiosity shop. Short notes on recent instances illustrative of the subject are given under the headings The Reindeer Inn, Banbury; The Treaty House, Uxbridge; The Star Hotel, Yarmouth; Rotherwas; Castle House, Petersfield.

There is no doubt that in reforming the methods of church restoration much has been accomplished, since the foundation of the Society, leading to their proper care, but there is also no doubt that much still remains to be done.

The Committee feels that members will be interested to read the letter which was written to *The Athenæum* by William Morris in 1877, which was in fact the letter which led to the founding of this Society. It will be gathered from reading this that the Church now shows greater care of its old buildings than it did in the past:—

Society for the Protection of Ancient Monuments.

26 Queen Square:

March 5, 1877.

My eye just now caught the word "restoration" in the morning paper, and, on looking closer, I saw that this time it is nothing less than the Minster of Tewkesbury that is to be destroyed by Sir Gilbert Scott. Is it altogether too late to do something to save it—it and whatever else of beautiful or historical is still left us on the sites of the ancient buildings we were once so famous for?

Would it not be of some use once for all, and with the least delay possible, to set on foot an association for the purpose of watching over and protecting these relics, which, scanty as they are now become, are still wonderful treasures, all the more priceless in this age of the world, when the newly-invented study of living history is the chief joy of so many of our lives?

Your paper has so steadily and courageously opposed itself to those acts of barbarism which the modern architect, parson, and squire call "restoration," that it would be waste of words to enlarge here on the ruin that has been wrought by their hands; but for the saving of what is left, I think I may write a word of encouragement and say that you by no means stand alone in the matter, and that there are many thoughtful people who would be glad to sacrifice time, money, and comfort in defence of those ancient monuments; besides, though I admit that the architects are, with very few exceptions, hopeless, because interest, habit, and ignorance bind them, and that the clergy are hopeless, because their order, habit and an ignorance yet grosser, bind them; still there must be many people whose ignorance is accidental rather than inveterate, whose good sense could surely be touched if it were clearly put to them that they were destroying what they, or more surely still, their sons and sons' sons, would one day fervently long for, and which no wealth or energy could ever buy again for them.

What I wish for, therefore, is that an association should be set on foot to keep a watch on old monuments, to protest against all "restoration" that means more than keeping out wind and weather, and, by all means, literary and other, to awaken a feeling that our ancient buildings are

MODERN EUROPEAN ARCHITECTURE.
FRANCE.

POST OFFICE, ALENCON.—Mons. MEZEN, Architect.

[From *La Construction Moderne*.]

not mere ecclesiastical toys, but sacred monuments of the nation's growth and hope.

WILLIAM MORRIS.

One point that strikes the mind on reading this letter is that the fine old buildings unspoiled by restoration, "wonderful treasures" as Morris says they are, were then become "scanty." This is still more the case now, in fact

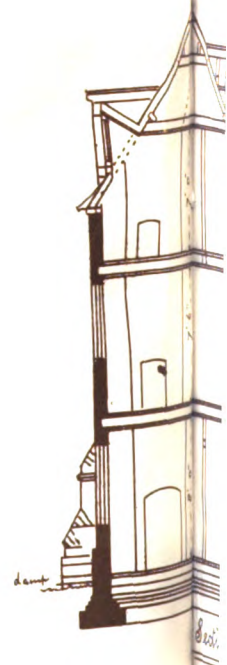
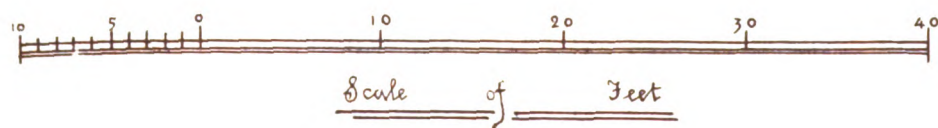
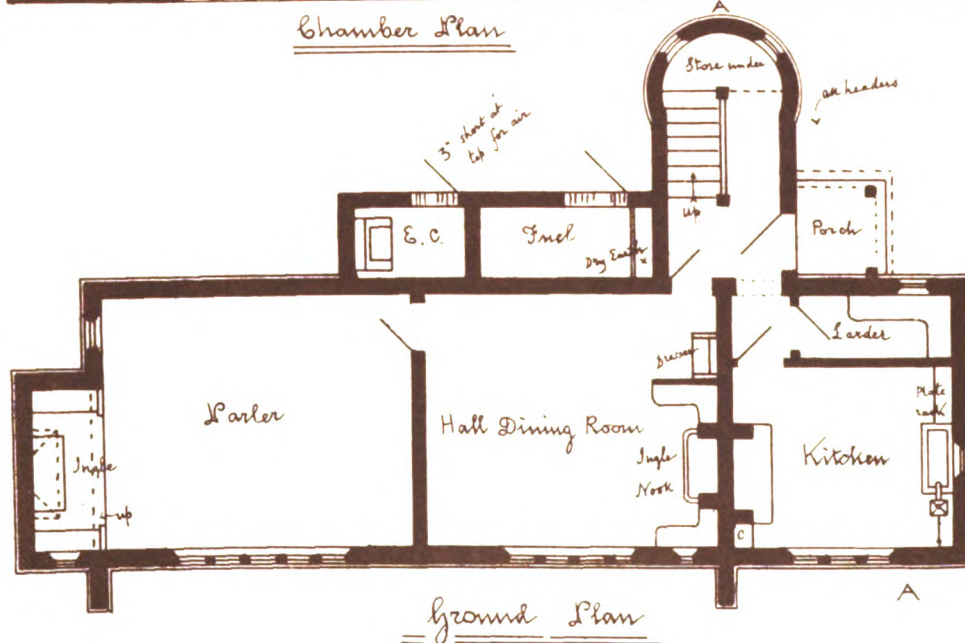
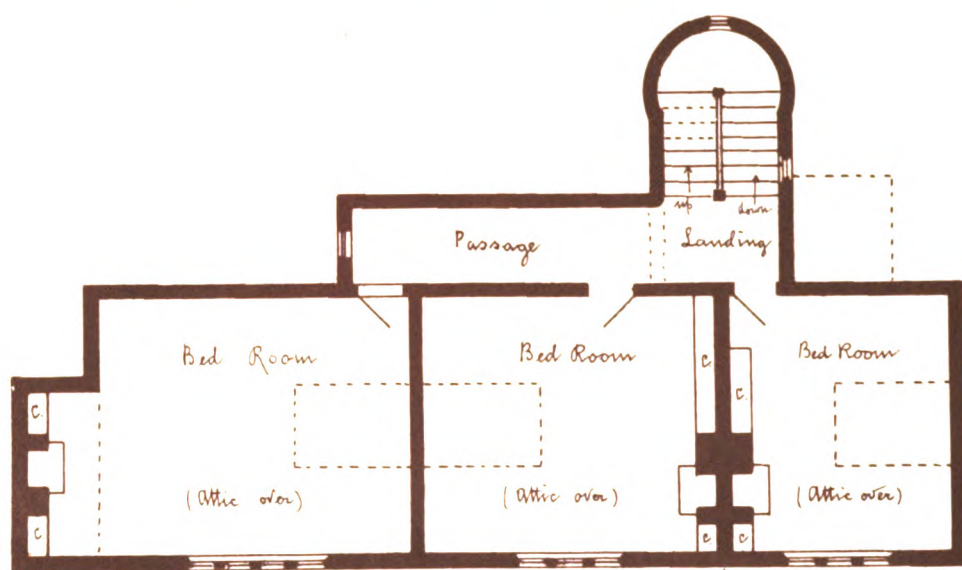
there are very few remaining that the restorer has not in some way spoiled. Therefore our members should be more alert to further our principles than ever before. In Morris' words they should "sacrifice time, money, and comfort" for this purpose.

The Committee lays before the members of the Society notes upon some of the cases which have received its atten-

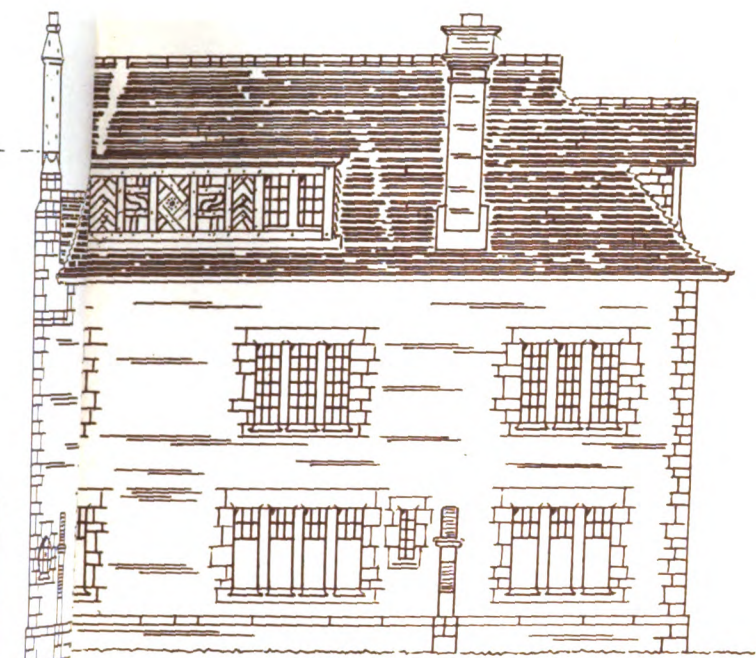
SEPT. 12, 1913.



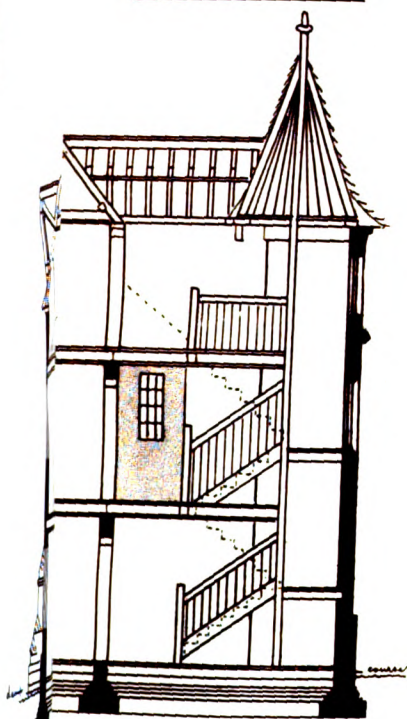
A Small Country House



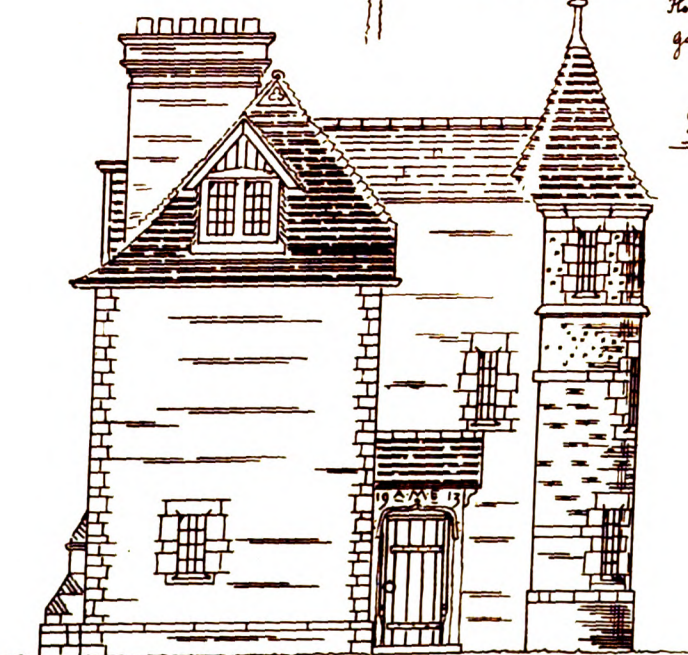
12th 1913.



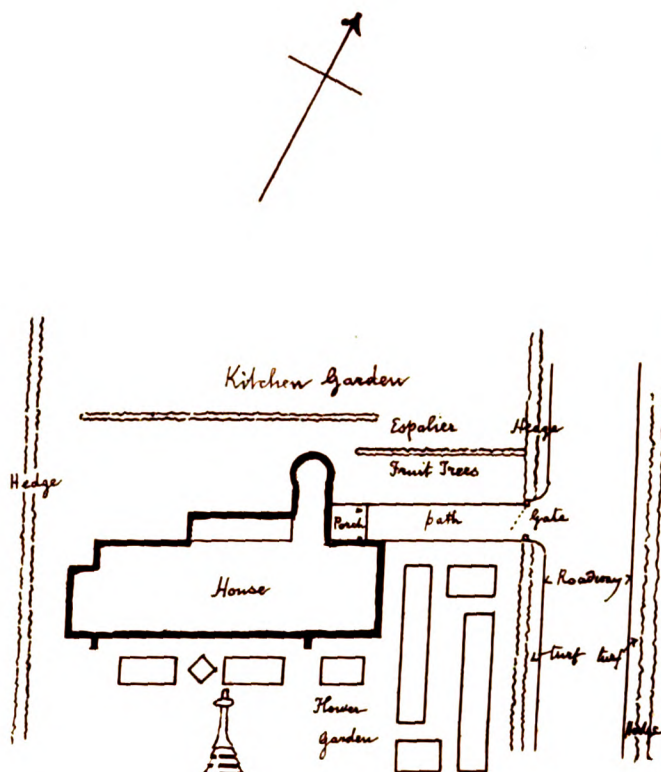
South Front



Section A-A



East Front

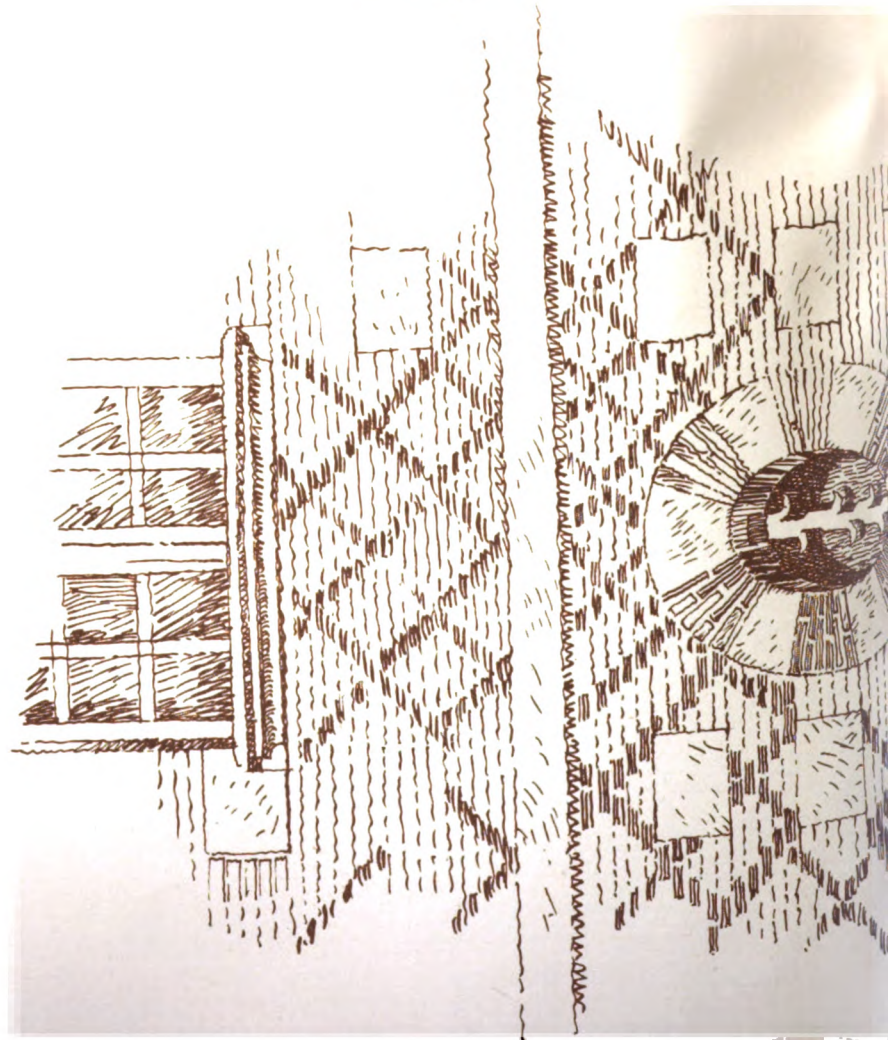
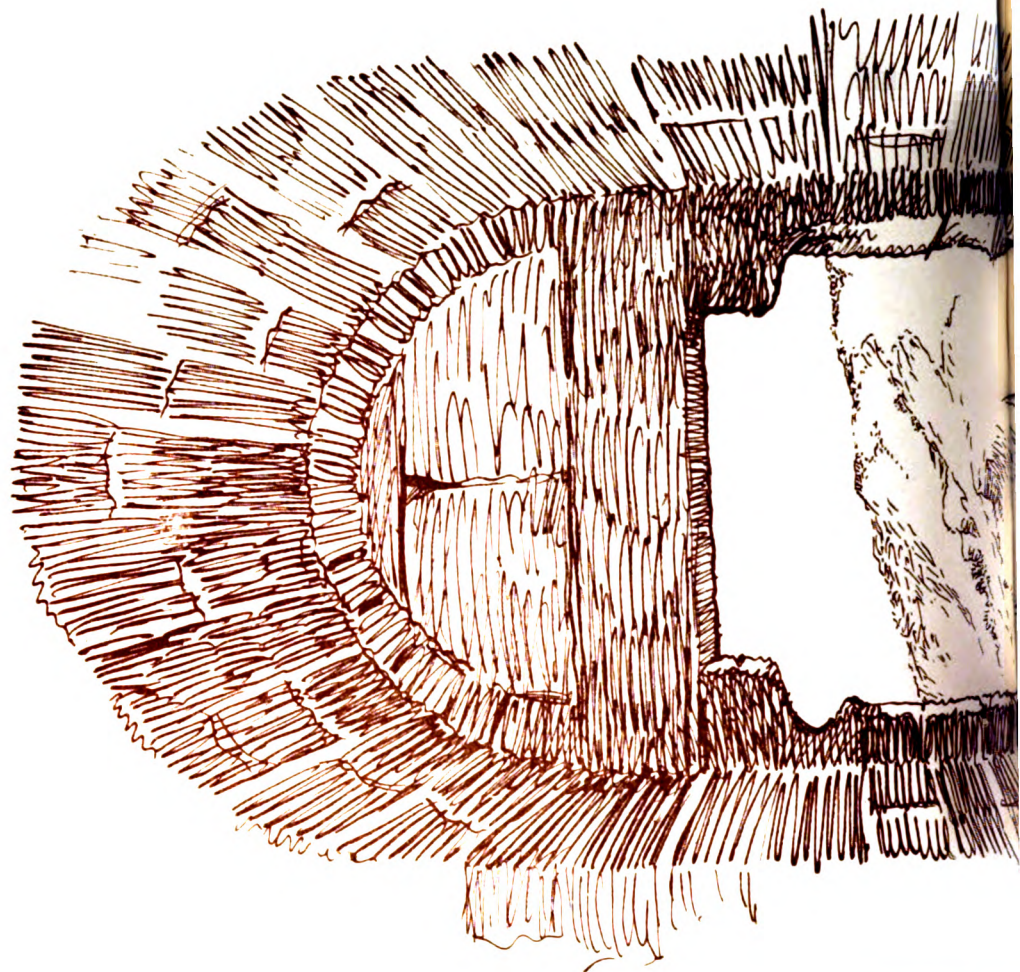


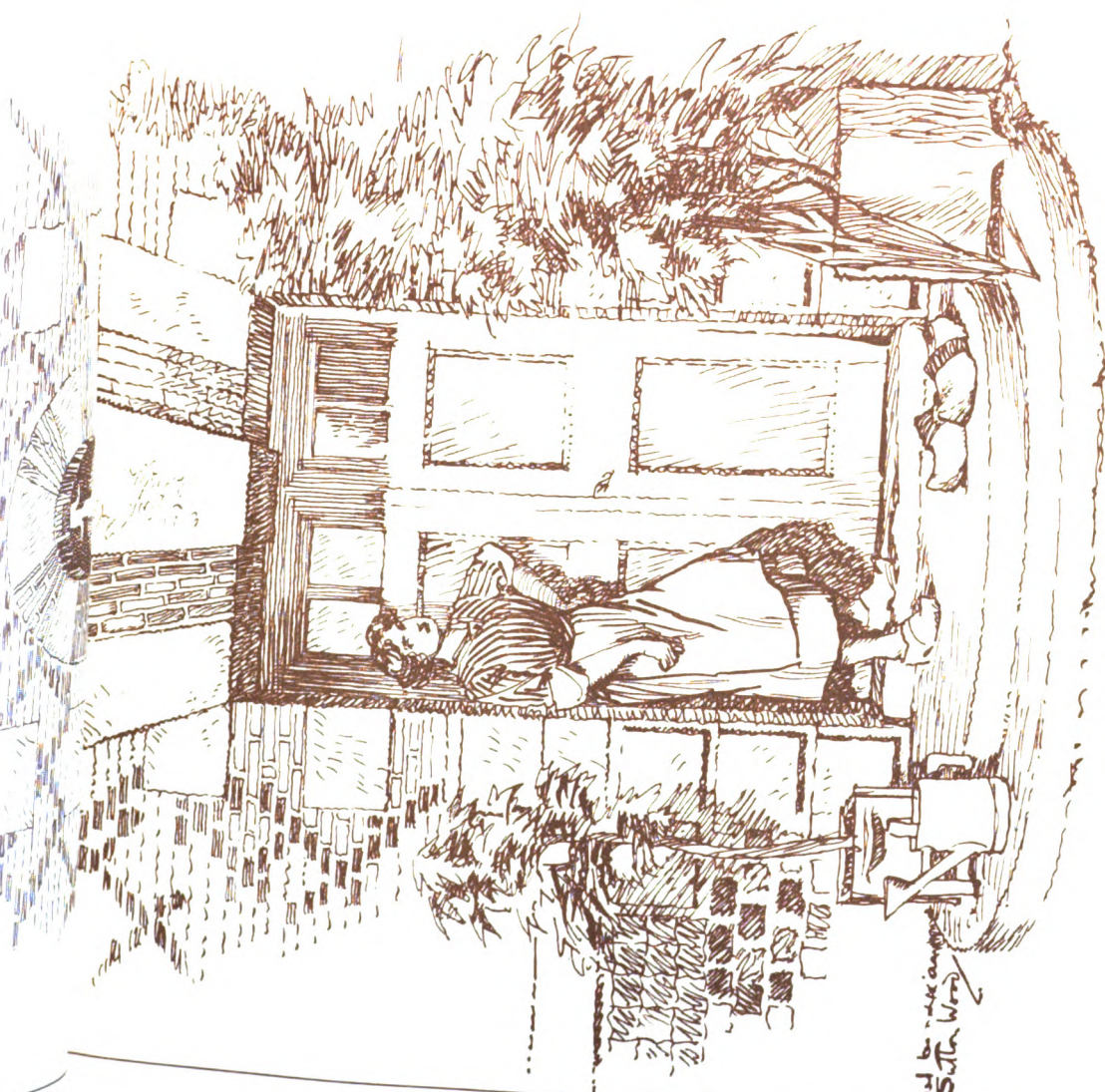
Block Plan

E. Swinfen Harris, F.R.I.B.A. inv. et del.
40, Chancery Lane, London,
& Stony Stratford.

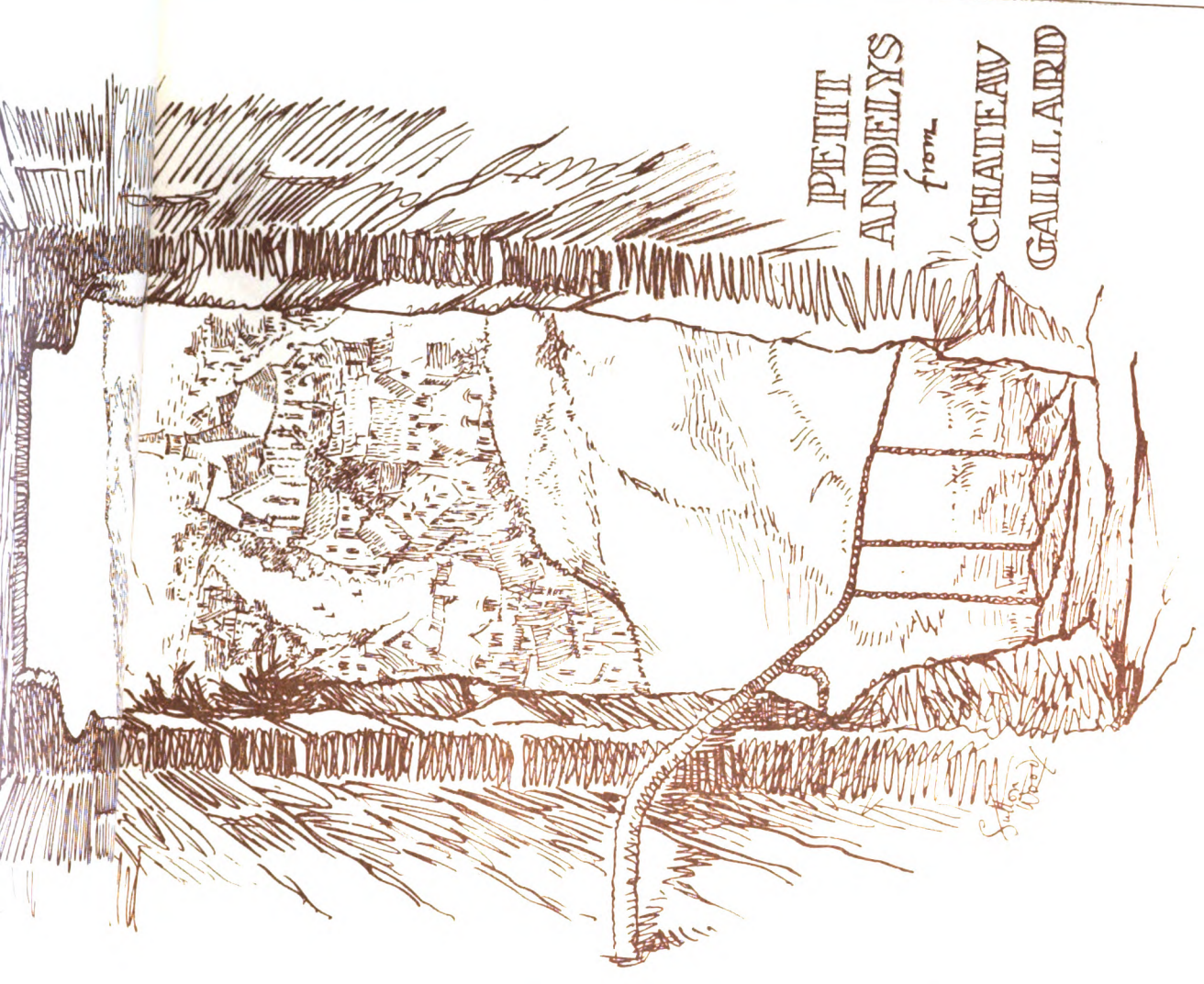
July 1913

The Architect, Sept 12th 1913.





MANOIR-BOSC GVERARD
1619.



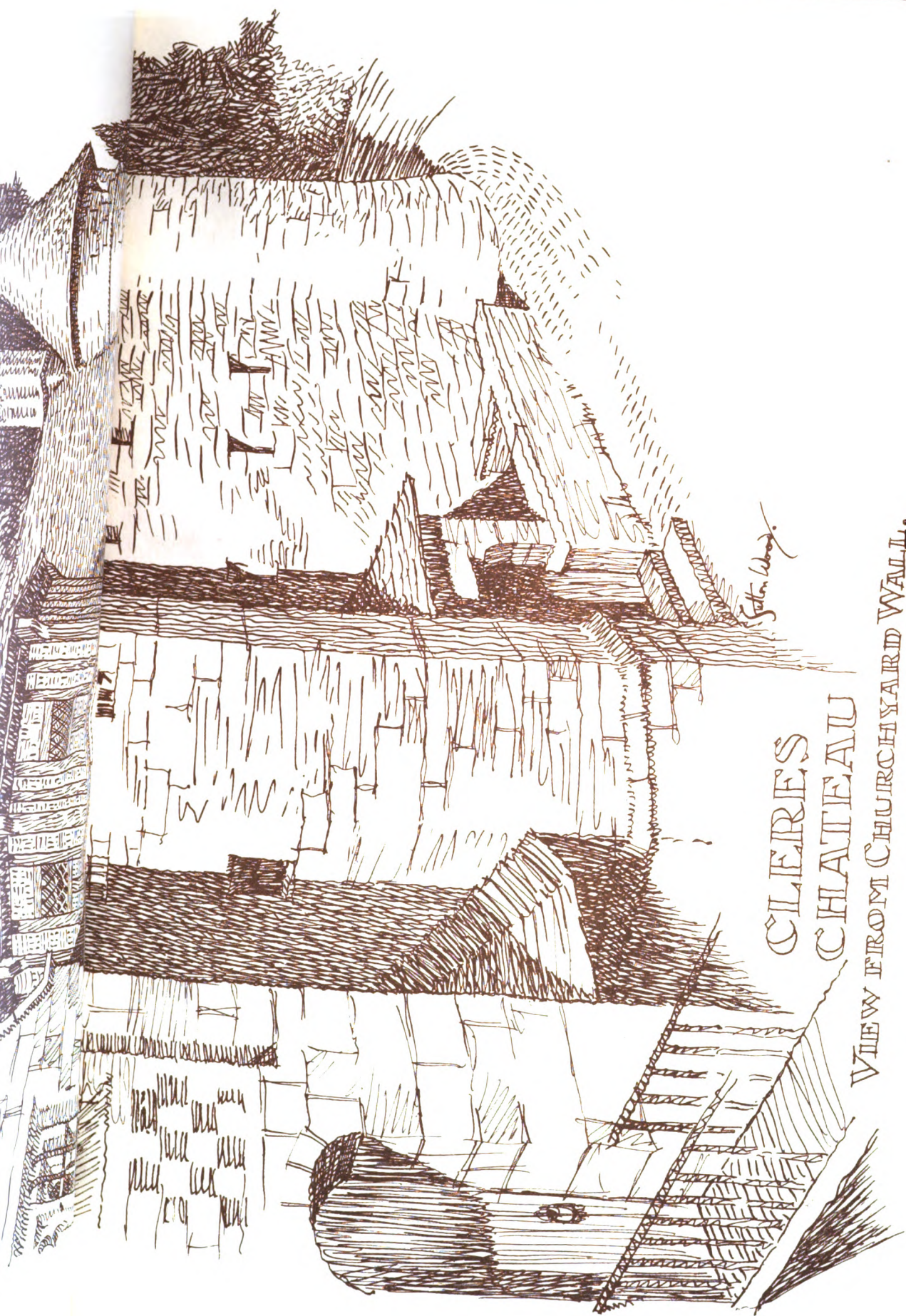
PETIT
ANDELYS
from
CHATEAU
GAILLARD

PHOTO-LITHO SPHAGNE & CO. LTD. 69 & 70 DEAN STREET, SOHO, W.

SKETCHES MADE ON THE ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.
BY MR. L. SUTTON WOOD.

The Architect, Sept. 12th 1913.





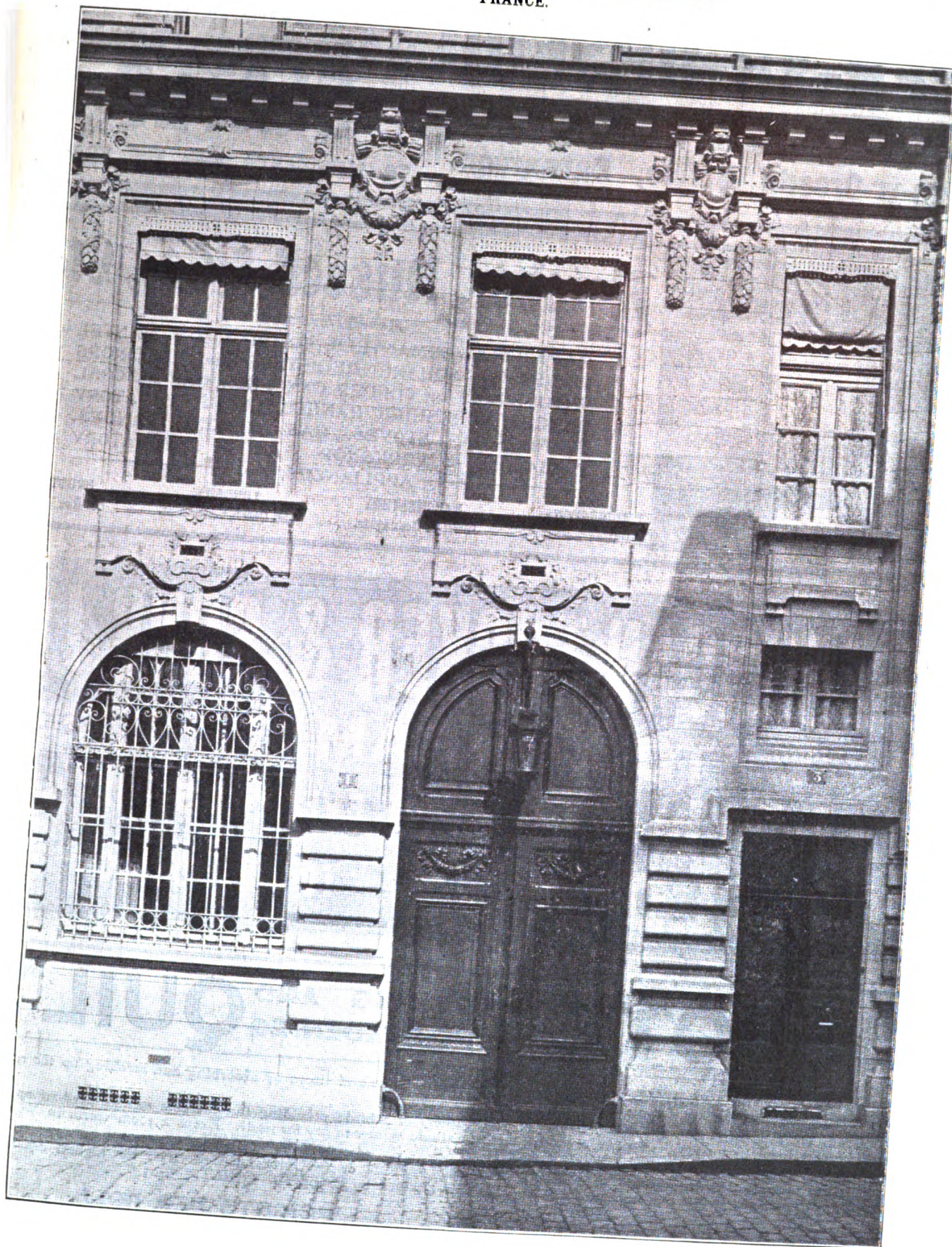
CLÈRES
CHATEAU

VIEW FROM CHURCHYARD WALL.

John Wood.

"NOTO LITHO SPRAGUE & CO. L^{TD} 69 & 70, DEAN STREET, SOHO, W."

SKETCHES MADE ON THE ARCHITECTURAL ASSOCIATION EXCURSION TO NORMANDY, 1913.
BY MR. L. SUTTON WOOD.

MODERN EUROPEAN ARCHITECTURE.
FRANCE.

POST OFFICE, ALENÇON.—Mons. MEZEN, Architect.

[From *La Construction Moderne*.]

tion and which are fairly representative of its work during the year, though they are only a small proportion of the total number of cases with which it dealt.

MEMBERSHIP.

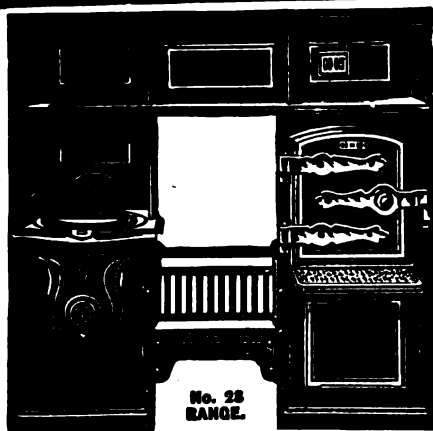
The Committee offers its sincere thanks for the response made to the appeal issued to members last October.

There is little doubt that if the needs of the Society were more generally known the membership would be quickly increased. There must be a large public willing to help forward its aims, but it is difficult to get in touch with it.

No better way of helping the Society can be found than that of personally interesting others in it.

PEN-YR-ORSEDD**SLATE QUARRY CO., Ltd.,**

Supply Best and Seconds Red and Purple

SLATESApply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.**TO MERCHANTS AND THE TRADE.****Fletcher, Russell & Co., Ltd.***Manufacturers of*

MANTELS, OVERMANTELS, COMBINATION MANTEL
REGISTERS, SQUARE REGISTERS and INTERIORS
WITH BRASS or COPPER CANOPIES, GAS and COAL
RANGES, YORKSHIRE RANGES, CURBS, LAVATORY
STANDS, GAS STOVES, GAS COOKING RANGES,
RADIATORS, WORKSHOP AND LABORATORY
APPLIANCES, &c.

WARRINGTON:
Palatine Works.MANCHESTER:
130-132 Deansgate.LONDON:
134 Queen Victoria St.BRUSSELS:
20 Rue T'Kint.**W.M. DUNCAN TUCKER & SONS, LD.**TELEPHONE
2
TOTTENHAM.**TOTTENHAM. N.**TELEGRAMS
"HORTICOLE
LONDON"

JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Cate.

It should not be forgotten that it is upon the number of members that the Society depends for its income.

The number of cases in which the Society is directly appealed to for advice is increasing faster than its income, so that the Committee finds it difficult to give adequate attention to all that comes before it. Owing to its small income the Committee is unable to have as many buildings visited as it would desire. Moreover, it is not—as it should be—in a position to make adequate grants for the repair of buildings in accordance with its principles, which, in many cases, is the only way to make its influence felt. In fact, several occasions arise when its useful action is hindered by lack of funds.

The Committee does not mean by this that its members do not do all they can, indeed it is most grateful to them for their generous support. What it is desirous to effect is to draw to the Society the large number of people who at present vaguely protest against the callous way in which so many fine examples of ancient architecture are treated or allowed to fall into decay.

The number of members at various dates since the foundation of the Society are here given: Membership in 1880 was 372; in 1890, 371; in 1900, 435; in 1910, 443; in 1912, 450; in 1913, 477.

Members and others will be interested to learn that the book, *Notes on the Repair of Ancient Buildings*, which was published by the Society in 1903, is now being brought up to date with a view to a new edition.

The "Notes" are being revised and added to, and when complete should make a useful and valuable guide to those having the custody of ancient and other buildings and having the care of their repair.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Biggleswade.—Unionist Club: alterations. Messrs. Styles & Son, contractors.

Motor Works, Palace Street, for Messrs. Maythorn & Son, Ltd. Messrs. H. Martin, Ltd., contractors, Thenford Street, Northampton.

CHESHIRE.

Macclesfield.—Public Elementary School, Adelaide Street, Hurdsfield, for 600 places.

Northwich.—Nos. 103-5-7, Weston Street: conversion into Picture House. Mr. A. England, architect, Carlton Chambers, St. Andrew's Road South, St. Anne's-on-Sea.

CORNWALL.

Camborne.—County School: extension. Mr. S. Hill, architect, Green Lane, Redruth.

Falmouth.—Secondary School.

Lostwithiel.—Twelve workmen's dwellings (£2,350).

DERBYSHIRE.

Burton.—St. Mary's (new) Church.

DEVON.

Buckfastleigh.—Fourteen workmen's dwellings. Council surveyor.

Colyton.—Ten working-class houses (£1,500).

Dartmouth.—Council school. Higher Victoria Road.

Plymtree.—Six cottages for Honiton R.D.C. (£680).

DURHAM.

Blackhill.—Premises, Derwent Street, for the Leagate Co-operative Society.

Hetton.—Twelve houses, Houghton Road, for Mr. J. J. Storey.

Twenty-five houses, South Hetton Road, for Mr. Logan.

Two houses, Claude Street, for Exors. of George Bruce.

Penshaw Staithes.—House for Mrs. Ann Hall.

Sedgleth.—Six houses for Mr. J. Fisher.

Spennymoor.—Municipal buildings, market hall, public hall, &c.

Sunderland.—Boys' Secondary School.

ESSEX.

Beacontree Heath.—House, Whalebone Lane, for Mr. W. Boyer.

Chadwell Heath.—Three houses, Saville Road, for Mrs. Dean.

Harwich.—Central School: additions and alterations. Borough surveyor.

Hornchurch.—House, Parkstone Avenue, for Homesteads, Ltd.

Rochford.—Police Station, South Street.

Tendring.—Isolation Hospital (£5,000).

Upminster.—House, Hall Lane, for Messrs. W. R. Griggs & Co.

GLOUCESTERSHIRE.

Bream.—House for Mr. A. H. Morse.

House, Brems Eaves, for Mr. P. H. Fox.

Broadwell Lane End.—House for Mr. W. Wilks.

Christchurch.—House, at Berry Hill, for Mr. C. Miles.

Dursley.—Thirty-eight workmen's dwellings (£6,800).

Edge End.—House for Mr. A. Morgan.

HERTFORDSHIRE.

Knebworth.—Eight houses, Stockern Green, for Knebworth Tenants, Ltd.

Home for Waifs and Strays, London Road. Messrs.

F. M. Thompson & Sons, Ltd., contractors, Louth.

KENT.

Dartford.—Cinema Theatre (accommodation for 1,000).

Mr. R. J. Lovell, architect, Brownlow House, High

Holborn, London. Messrs. Blay & Co., Ltd., con-

tractors (also Railway Approach, Cannon Street, London).

Dover.—S.A. Halls. Mr. C. E. Beaufoy, contractor, 35 High Street.

LANCASHIRE.

Barrow-in-Furness.—Picture Theatre, Natal Road, Vickerstown, for the Barrow and Walney Picture Palaces, Ltd.

Bolton.—Meeting Hall, Henry Street, for Managers' and Overlookers' Association.

House and shops, Ainsworth Lane, for Messrs. Leigh Brothers, Ltd.; also six houses, Parkdale Road.

House, Chorley New Road, for Mr. E. Aspinall.

Liverpool.—City Hospital, Parkhill: additions (£3,200).

Mr. T. Spencer, contractor, Bull Bridge, Aintree.

Also alterations (£2,100). Messrs. Rimmer Brothers, contractors, Dalton Street.

Westhoughton.—Technical School.

LINCOLNSHIRE.

Washingborough.—Parish Church: restoration (£600).

MONMOUTHSHIRE.

Argoed.—Baptist Chapel: additions.

Rhymney.—Isolation Hospital.

NORFOLK.

Baconsthorpe.—Four cottages for the Erpingham D.C. (£620). Mr. A. G. Brown, contractor, West Runton.

NORTHAMPTONSHIRE.

Northampton.—Girls' Secondary School.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Council Schools at Cruddas Park (£11,550) and Rye Hill (£14,800).

Prudhoe.—Prudhoe Hall: conversion into a Northern Counties Home for the Feeble-minded (£17,000).

Wallsend.—Concrete cottages for the Wallsend and Hebburn Coal Company.

NOTTINGHAMSHIRE.

Cromwell.—Parish Church: addition and restoration. Messrs. Sheppard & Lockton, architects, Bargate, Newark-on-Trent.

SHROPSHIRE.

Oswestry.—Church tower: restoration (£500). Mr. Basil Stallybrass, architect.

SOMERSET.

Bridgwater.—Hospital: enlargement (£5,000).

STAFFORDSHIRE.

Leek.—Dyeworks: extensions for Messrs. Brough, Nicholson & Hall, Ltd.

Two houses, Buxton Road, for Messrs. Bayley & Carter.

Two houses, Hartington Street, for Mr. Guild.

SURREY.

Chobham.—Eight cottages for the Chertsey R.D.C.

Tadworth.—House for Mr. A. B. Cowell.

SUSSEX.

Balcombe.—Parish Room.

Eastbourne.—Hospital. Gildridge Underhill. Mr. W. C. Field, Borough architect, Town Hall.

Concrete Building Blocks

Houses Guaranteed "BONE DRY" by the "WINGET" SYSTEM

NO WATERPROOFING
COMPOUNDS REQUIRED

The "WINGET" Machine
stands alone for SPEED in
operation, range of sizes
produced, and variety of
textures of faces
BY ONE MACHINE

British Government Departments,
Railway Companies, Corporations, and
the leading Contractors throughout the
world use "WINGETS"

BRITISH BUILT, FULLY GUARANTEED BY A
BRITISH FIRM OF WORLD-WIDE REPUTE.

The (U.K.) WINGET CONCRETE MACHINE CO., LTD.
5 STAR BUILDINGS, NEWCASTLE-ON-TYNE.

ENGLAND—continued.

SUSSEX—continued.

Sedlescombe.—Village Hall.

Westhampnett.—Isolation Hospital.

WESTMORLAND.

Kirkby Lonsdale.—Post Office: additions and alterations.

WORCESTERSHIRE.

Evesham.—Sanatorium: additions and alterations (£1,100).

Redditch.—Twelve workmen's cottages, Beoley Road. Council surveyor.

YORKSHIRE.

Bentley.—P.M. Chapel.

Dewsbury.—House, Park Road, Birkdale. Messrs. Kirk, Sons & Ridgway, F.R.I.B.A., architects, Market Place.

Maltby.—Thirty houses, Leslie Avenue, for Messrs. Ward & Atkinson.

Sheffield.—Church House. Messrs. Webster & Son, R.I.B.A., architects, 19 St. James' Street.

Crippled Children's Institution, Rivelin Valley Road (accommodation for ninety beds).

Thurcroft (near).—Fifty houses near the Colliery, for the Rother Vale Collieries, Ltd.

WALES.

Barmouth.—County Sanatorium for the Committee of the Welsh National Memorial to King Edward VII.

Flint.—Bakery, &c. (£1,650). Mr. F. A. Roberts, architect, Earl Chambers, Mold. Mr. A. B. Lloyd, contractor, Halkyn Street.

Nelson.—Shops and billiards saloon, Commercial Street. Mr. W. T. Pugh, architect, Brynmaman.

Ogmore Vale.—Ogmore Valley Hotel: additions. Mr. J. T. Jenkins, architect, Fairfield House, Porth (also at Bedwas, Mon.).

Penmaenmawr.—House, near Hafod-y-Coed, for Mr. Thomas Jones.

House, Mountain Lane, for Mr. J. S. Coverley.

Pentredwr.—Wesleyan Methodist Church.

Swansea.—Workhouse Infirmary: Nurses' Home (£6,300).

SCOTLAND.

Ariemore.—Episcopal Church.

Edinburgh.—St. Mary's Episcopal Cathedral: western towers and spires (£11,000).

Glen Lomond.—Sanatorium for Fife (accommodation for 150 beds), £20,000 to £25,000.

Grangemouth.—Board School, California district.

Lossiemouth.—Masonic Temple. Mr. R. B. Pratt, A.R.I.B.A., architect, 110 High Street, Elgin. Separate trade contractors.

IRELAND.

Ballymena.—Technical School: reconstruction.

Workhouse: hospital (£7,500).

Bushmills.—Presbyterian Manse: alterations, &c. Mr. S. J. McFadden, C.E., architect.

Dublin.—Royal Hospital for Incurables, Donnybrook (accommodation for 248 beds). Messrs. Kaye-Parry (F.R.I.B.A., F.R.I.A.I.) & Ross, architects, 48 Kildare Street.

Blocks of small houses. Mr. T. T. Miles, C.E., architect, 7 Trinity Street.

No. 9 Wicklow Street: rebuilding. Mr. C. H. Ashworth, F.R.I.B.A., F.R.I.A.I., architect, 12 William Street.

Fintona.—Labourers' cottages for the Omagh R.D.C.

Glenswilly Chapel.—Parochial Hall. Mr. M. O'Callaghan, architect, Main Street, Letterkenny.

Kilcolman (Co. Limerick).—R.C. Church. Mr. B. E. F. Sheehy, C.E., architect, George Street, Limerick. Mr. G. Ryan, contractor, Thomas Street, Limerick.

Listowel (near).—R.C. Church, Carrigcannon. Messrs. Ashlin & Coleman, architects, 7 Dawson Street, Dublin.

BRITISH PATENT SPECIFICATIONS.

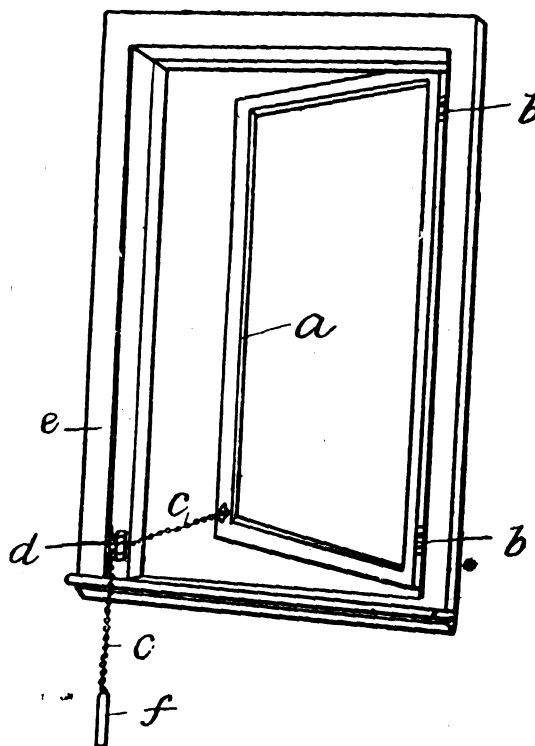
Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 25,772. Nov. 9, 1912.—Means for operating and securing casement windows, fanlights, and the like. William Houlker, jun., architect, of Trafalgar Street North, Nelson, New Zealand. This invention is designed

to provide simple and efficient means for the operation of casement windows and fanlights, and particularly to provide for the automatic opening of the sashes when released, for the ready closing thereof and for the sashes being automatically gripped and retained in the closed or partially closed position. Fig. 1 is a view of a casement window showing the appliances in position. Fig. 2 is a front elevation of the device, and fig. 3 is a sectional elevation of same. The casement sash *a* is spring-hinged,

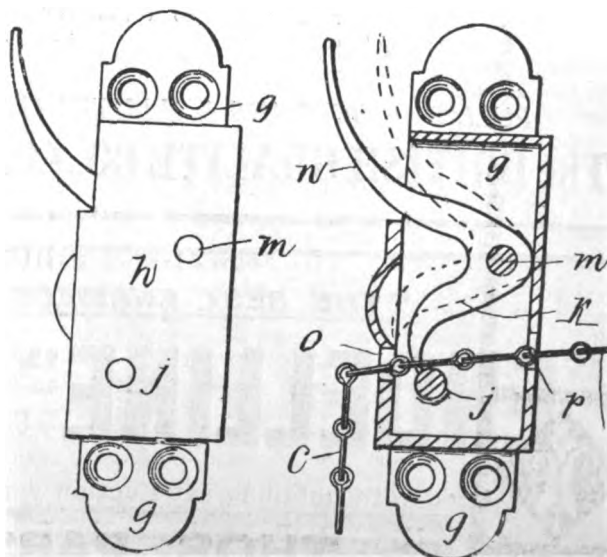
FIG. 1



as at *b*, in such a manner as to be normally pressed to the open position. Attached to the free edge of the sash is the chain *c*, which passes through the grip *d*, fastened to the casement frame *e*, and has a weight *f* upon its end. The weighted end is allowed to hang free in the manner shown. The grip *d* is of such a construction as to grip the chain *c* when such chain tends to move through it in the outward direction, but to slide freely through it in the inward direction. Its construction is such also that it

FIG. 2

FIG. 3



may be operated to free the chain whenever required. When the sash is closed it is retained in the closed position by the engagement of the chain by the grip. To open the sash the chain is released from the grip, when the spring hinges will force it open and draw the chain out through the grip. When the sash is sufficiently open the grip is allowed to engage the chain and prevent the sash opening

Tel. Nos.: {Cheltenham, 798 & 799
London, North 2165.

Glasgow, P.O. Central 979.
Manchester, Central 5416.

Telegrams: {Sunningend, Cheltenham.
Sunningend, London.

H. H. MARTYN & CO., Ltd.

CARVERS

And Architectural Decorators.

250,000 feet of Dry ENGLISH OAK in stock.

BRANCHES

LONDON: 192 ALBANY STREET, N.W.

GLASGOW:
30 GEORGE SQUARE.

MANCHESTER:
6 SOUTH KING STREET

Head Office: Sunningend Works,
CHELTENHAM



URALITE ASBESTONE

IN TILES FOR ROOFS, IN
SHEETS FOR PARTITIONS & CEILINGS.

*As used by the L.C.C., H.M. Office of Works, Admiralty, War Office, Metropolitan Asylums Board,
and the leading Architects.*

BEST FOR ROOFS,

BECAUSE

- (1) It is very light, and a far lighter superstructure can therefore be used.
- (2) There is no loss by breakage either in transit or fixing, as is the case with ordinary slate.

BEST FOR PARTITIONS AND CEILINGS,

BECAUSE

- (1) It is fire-proof, vermin-proof, and damp-proof.
- (2) It is rapidly fixed to a wood or steel framing.
- (3) It is dry when it is put up, and therefore papering and painting can be proceeded with immediately.

FULL PARTICULARS & ILLUSTRATED BOOKLET will be sent FREE on application.

The **BRITISH URALITE CO. (1908), Ltd.**, (ROOM 17) 85 Gresham St., E.C.

"THE BEST ENAMELS FOR THE BEST RESULTS."

"ENDELLINE" & "ENDELFLAT"

Used with unfailing satisfaction wherever the finest enamel finish is required.

THOS. PARSONS & SONS,

Makers of the highest class of Varnishes and Japans for over a Century.

**8 Endell Street, Long Acre,
LONDON, W.C.**

further. The sash may be closed by drawing on the chain, or by pushing the sash in from the outside, the weight *f* causing the slack in the chain caused to run in through the grip, while the sash will be held from opening again by the engagement of the chain in the grip. Any play in the sash through draughts or winds will consequently be prevented, as immediately the sash closes partially or wholly the slack in the chain is taken in by the weight and the sash held from opening. The grip has a pair of side plates, *g*, *h*, one of which, *g*, constitutes a base and is made with screw holes to permit of it being fixed to the casement frame. A pin *j* is arranged to extend across between the two side plates, and above the pin an eccentric tooth or cam *k* is placed and pivoted upon a pivot pin *m*, extending across between the side plates. This tooth engages with the cross pin *j*, and normally rests thereon by its own weight. It has a finger-piece extension, by pressing on which the tooth, or cam, may be lifted up away from the cross pin, as shown by the dotted lines in fig. 3. The ends of the side plates are closed in, as shown, and are formed with apertures *o*, *p*, in the ends through which the sash holding chain *c* may be passed. As shown in fig. 3, the chain is passed through the grip above the cross pin *j*, so that the eccentric cam or tooth *k* rests thereon. An outward strain on the chain will thus serve to draw the tooth or cam hard down on the pin *j* so as to lock the chain between it and the pin, and the greater the strain, the greater will be the grip of the cam. A pull on the chain in the reverse direction will cause the tooth or cam to lift and allow the chain to slide freely beneath it. July 30, 1913.

PATENT SPECIFICATIONS PUBLISHED SEPTEMBER 4, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

- No. 19,054. Aug. 20, 1912.—C. R. Belling, 10 Glebe Avenue, Enfield. Construction of heating elements for electric radiators.
- 19,064. Aug. 20, 1912.—H. J. Piper, 166 St. Paul's Road, West Smethwick, Staffs., and R. A. Bridgwater, 114 Richmond Hill, Langley Green, Worcester. Electrically heated cooking ovens.
- 19,862. Aug. 30, 1912.—F. E. Ashworth, 22 Halliwell Street, Milnrow, Rochdale. Device for supporting scaffolding and like structures.
- 20,238. Sept. 5, 1912.—H. J. Clare, Rothley Plain, near Leicester. Cavity wall tie.
- 22,147. Sept. 30, 1912.—Chas. Shaw, Princes Chambers, Princess Street, and D. E. Campbell, Royal London Buildings, Wellington. Flushing apparatus.
- 24,391. Oct. 25, 1912.—T. J. Stevens, 77 Jakeman Road, Cannon Hill, Birmingham. Coating composition for protecting surfaces against rust and corrosion.
- 26,192. Nov. 14, 1912.—Hugo Junkers, Frankenburg, Bismarckstr., Aachen, Germany. Cooking apparatus, ovens, stoves, and the like.
- 26,426. Nov. 18, 1912.—Dated under International Convention Nov. 17, 1911. M. G. C. R. D'Olivier-Mansan, 51 Doughty Street, W.C. Chemical treatment of bitumen tar, pitch, and other similar bituminous substances.
- 27,461. Nov. 29, 1912.—R. A. Payward, 1058 Chester Road, Stretford, Manchester. Combined register grates and cooking stoves.
- 28,600. Dec. 11, 1912.—Geo. Hall, 16 Bewick Road, Gateshead. Hinges or pivots for reversible casements, window sashes, and similar uses.
- 29,479. Dec. 21, 1912.—H. W. Theis, 708 Third Street, Milwaukee, U.S.A., and W. J. Sutton, 951 Wall Street, Milwaukee. Ball cocks.
- 29,994. Dec. 30, 1912.—A. J. Roach-Cuming, 21 Cowcross Street, E.C. Transparent panels and the like for the purpose of preventing the conduction of heat therethrough and construction of same.
- 1,558. Jan. 20, 1913.—Georg Ahting, Duddingen, near Rodenkirchen, Oldenburg, Germany. Door hinge.
- 4,791. Feb. 25, 1913.—The American Calking Machine Co., Incorporated, 94 Warren Street, New York. Tamping apparatus for pipe joints.
- 8,564. April 11, 1913.—Chas. Green, junr., 21 Northdown Street, King's Cross, E.C. Wall papers.
- 9,905. April 28, 1913.—Levi Tanner and L. H. Tanner, 11 Grove Avenue, Fishponds, Bristol, and William Stone, 726 Fishponds Road, Fishponds, Bristol. Fountains.

23,218. Oct. 11, 1912.—J. H. Ratcliffe, Gaylor Street Colour Works, Oldham Road, Manchester. Portable mixer for paint, distemper, paste or the like.

2,033. May 3, 1913.—H. R. Taylor, architect, 140 Princes Street, Edinburgh. Roof lights.

3,391. Feb. 10, 1913.—T. S. McLendon, Carrollton, Carroll, Georgia, U.S.A. Derricks or portable hoists.

4,113. Feb. 18, 1913.—G. W. Morgan, 116 King Street, West Hamilton, Ontario. Kitchen ranges and cooking stoves.

7,091. Mar. 25, 1913.—J. P. Gage, Vineland, Cumberland, New Jersey, U.S.A. Carpenters' planes.

9,964. April 28, 1913.—Dated under International Convention, May 3, 1912. G. C. Harvey, 7 Park Street, Geneva, Ashtabula, Ohio, U.S.A. Reinforced blockwork structures.

14,470. June 23, 1913.—Dated under International Convention, July 4, 1912. Karl Johannesman, Ferdinandgrube, Oberschlesien, Germany. Device for simultaneously cutting and closing hollow bricks.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

The London Society and the Regent's Quadrant Improvement.

SIR.—The further series of questions asked in Parliament shortly before the close of last session with reference to the rebuilding of Regent's Quadrant reveals only too clearly the unsatisfactory position that the Government have taken up in this most important London improvement.

The Quadrant Committee advises a modification of the late Mr. Shaw's design; but the Government—by their own admission in Parliament—have thrown his design over, and have announced that any of the leaseholders' architects are at liberty to present plans for rebuilding, and that they will be considered if they agree with the modifications suggested in the Quadrant Committee's report.

The London Society maintains that this procedure is absolutely wrong. A comprehensive design for the whole Quadrant must first be prepared in accordance with the Committee's report, and to this design all rebuilding must conform. Nash's design has given a dignity and interest to the West End of London ever since its inception, and it is our duty to see that that dignity is maintained.—I remain, yours faithfully,

PERCY W. LOVELL,
Secretary, London Society.

27 Abingdon Street, S.W. : September 5, 1913.

Undeveloped Land Duty.

SIR.—Complaints are being received from many quarters as to the imposition of this duty; one year's tax and three years' arrears from 1909 being claimed from owners of building plots, even when they have only purchased and actually built on the land during the last year. The Revenue authorities in such cases contend that the unfortunate purchaser is the "owner of the land for the time being," and is, therefore, legally liable for the duty, although he did not own the land when the tax accrued.

In many instances the purchaser is now called upon to pay four years' taxes on land which may have been his for only as many weeks, and possibly because the original owner failed to appeal against the assessments and claim exemption under Sections 16 and 17 of the Finance Act, 1909-10. It is quite possible that under an Act so grotesque this method of demanding a tax from a person who, in equity, is no more responsible than you or I, may be legally correct, although there is some doubt even on this point; but whether "legally" demanded or not, it remains a great injustice.

The Land Union has dealt with many cases where such claims have been made and investigation has proved the land to be exempt from undeveloped land duty, owing to expenditure on road-making, &c. If victims of this imposition will communicate with me by letter, I shall be very pleased to give them any information which may be of value in contesting unjust claims.

C. H. KENDERDINE.

St. Stephen's House, Westminster, London, S.W. :
September 6, 1913.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,

and
Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.

GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.

NO EXPENSE IN LAYING.

From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST — COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sup.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sewest, London." Telephone: Regent 2043.

N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steellrubber—other makes to order.

GOLD MEDAL "Bell" Grates

are in use at
The Mill House,
Dersingham.
Fyvie Castle.
Ludlow Castle.
Inveraray Castle.
Dungannon Park.
East Haddon Hall.
Rushton Hall.
Whittington Old Hall.
Charlton House.
Russley Park.
Mulroy, Londonderry.
Stoke Bruern Park.
Manor Park, Beds.
&c., &c.



GOLD MEDAL "Bell" Grates

are in use at
Grand Hotel, London.
Savoy Hotel.
Cameron Hotel.
Swansea.
Sandhurst College.
Cambrian Dock Office.
Royal Liver Bldg., L'pool.
Junior United Service Club.
Royal Southern Yacht Club.
King Edward Grammar Schools, B'ham.
&c., &c.
BELL RANGE & FOUNDRY CO.,
16 Berners St., W., and Northampton.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co., Ltd., 105 Albion St., LEEDS.

"FLEXIBLE AS A KID GLOVE."

Seure

the perfected paint for outside and inside.

WRITE FOR 20 PAGE HANDBOOK (naming this paper) TO
C. CHANCELLOR & CO LTD 15 CLERKENWELL RD LONDON.

TO ARCHITECTS If you wish to give your clients satisfaction, specify

THE "RATHBONE" WALL-PAPERS

To be seen at all High-class Decorators, and at our spacious Showrooms.

A. CHAPMAN & CO., Ltd.,
11 Rathbone Place, Oxford St., W.

Telegrams: "Alfred Chapman, Ox., London." Telephone: Garsard 1909.

The Architect.

CONTENTS.

	PAGE
What is Art?	253
A Californian Bungalow (illustration)	254
Notes and Comments	254
University of London	256
East Africa Architectural Association	256
Competition News	256
Illustrations :—	
City of Leeds Training College	256
Clifford Chambers (illustrated)	257
The Via Appia and the Aqueducts of Ancient Rome	259
Reinforced Concrete Wall and Column Footings	259
Suburban and Residential Estate Development	263
Recent Discoveries in Egypt	263
Licensed Architects in Illinois, U.S.A.	264
Excavations at Wroxeter	265
Scraping and Cleaning Sewage Rising Mains	265
Pershore Abbey	266
A New Suction Pump (illustrated)	266
Ecclesiastical Architecture in Central Italy	267

	PAGE
Entrance to Private House, Boulevard Montmorency, Paris (illustration)	268
Markgraf Karl-Friedrich House, Pforzheim (illustration)	269
Building Progress in the Provinces	271
British Patent Specifications	275
Correspondence	275

FORTHCOMING EVENTS.

Friday, September 19.

Architectural Association Camera, Sketch, and Debate Club : Week-end Visit to Goudhurst and District (September 19-22).
Institute of Sanitary Engineers : Meeting at Manchester (two days).

Monday, September 22.

The Annual Association of Master House Painters and Decorators : Annual Convention opens at Leamington (three days).

Friday, September 26.

Royal Archaeological Institute : Autumn meeting : visit to Stonehenge and Old Sarum.
Architectural Association Camera, Sketch, and Debate Club : Visit to 120 Queen's Gate.

WHAT IS ART ?

AMONGST the discussions with which philosophy has been fain to occupy its apostles and disciples the definition or explanation of Art has been particularly favoured, possibly from the very intensity of the difficulty of a rigid definition or a completely satisfactory explanation. It is easy to say that "Art is the production of beauty," but we are still left with the equally difficult question—what is beauty? These questions are, in fact, not to be answered in the compact terms of a definition or an epigram, hence their discussion becomes an occasion for lengthy dissertation, such as that of Paul Gaultier, whose inquiry into the meaning of Art has been crowned by the French Academy of Moral and Political Sciences, and the third French edition of whose book has been recently translated and published* in English.

The question—What is Art?—is not only one for the philosopher but for every serious man who desires to account to himself for his enjoyment of art, as well as for the artist, who tries to analyse himself. It may be said, and possibly with a certain measure of truth, that it is not necessary for the artist to try to analyse himself, that such an endeavour is a negation of his own personality and an assumption of that of a philosopher, that the trend of his mentality is synthetic rather than analytic. It may be doubted whether, for example, Turner, although he claimed to paint his pictures "with brains," ever consciously realised all that Ruskin found in them. On the other hand, we may be fairly confident that amongst the Greeks and in the time of the Italian Renaissance, artists had to be prepared for a reasoned defence and explanation of the faith that was in them, to justify the artistry of their works.

Paul Gaultier opens his discussion by the question : "Why is it that a statue, a symphony, a picture, and a monument are alike entitled to be called works of art? What have they in common? What is the difference, if there is any, between any one of these and a work which is not pronounced artistic? What, in other words, distinguishes a painting by Corot from a photograph or even from a chromolithograph, a piece of Boule or Riesener furniture from any other sort, the palace of Versailles from barracks or from any ordinary building? Does this difference lie in the fact that a work of art conforms more or less to a supreme model or ideal, or, on the contrary, that it imitates nature?

Or is it, on the other hand, merely a game—a happy combination of sounds, lines, colours, or reliefs?"

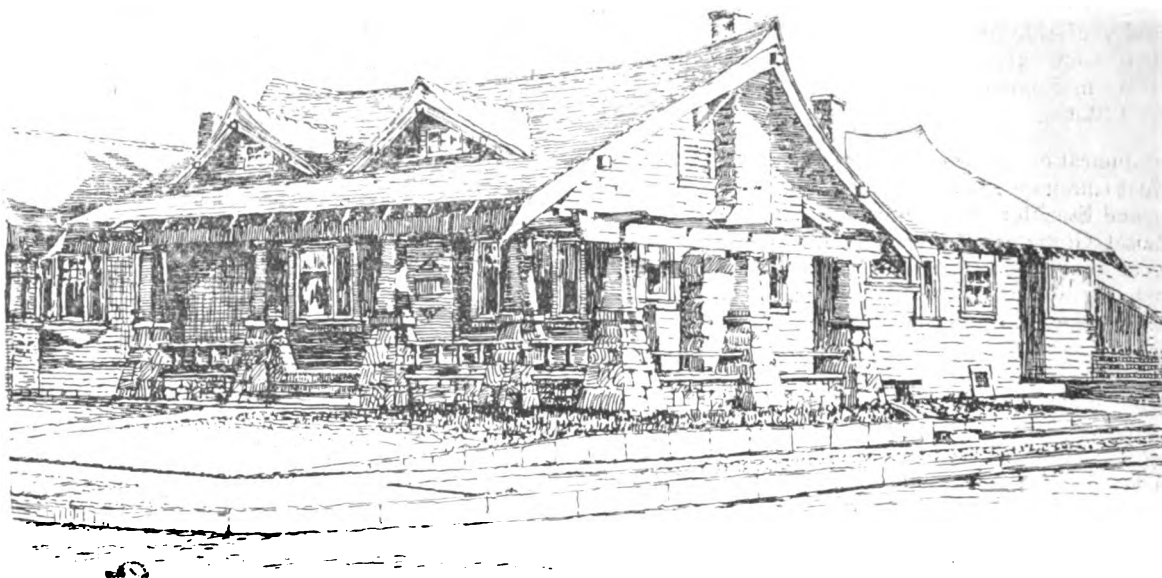
The last of these questions is, in a measure, answered by Gaultier with the statement that "Different from all other activities, the æsthetic is an end unto itself, in the expenditure it makes of itself and in that which displays it to others. It is, to sum it up, as Schiller clearly recognised, an activity of play." But, although Art has this in common with play, that both artist and player obtain pleasure in their activity, Art is distinguished from play in that its productions give pleasure to those who are charmed by Art, and this pleasure is by them attributed to the quality of beauty in the productions. Thus if Art is play, it is play that produces beauty.

In his discussion of the question—What is Beauty?—Gaultier reviews the opposite propositions that it is, on the one hand, something objective to which Art must conform, and on the other hand something to which only a subjective and individual existence is accorded. As a refutation of the objectivist view, our author shows that absolute beauty does not exist as an entity apart from the imagination of philosophers. Therefore we may say that although things may be beautiful there is no such thing, strictly speaking, as beauty. It does not exist as something that can be added to the ugly or the commonplace and transform their character. It is an inherent quality, not a factitious substance. Hence the common fallacy of the Philistine suggestion that a building can be made beautiful by the addition of ornament or decoration.

If beauty is not purely objective it has therefore been assumed by another school of philosophers, as Hucheson and Kant, to be purely internal and subjective, a creation of the mind or a state of consciousness. For the subjectivists the beautiful is what we judge or rather feel to be such—our judgment being in its character dependent on sentiment, or, perhaps better, on the emotion which constitutes beauty for us. This in effect is the attitude of him who professes to be ignorant of Art, but affirms "I know what I like."

The subjectivist argument makes points of the differences of appreciation between individuals and between centuries and countries. That which affects one period passes unnoticed at another; that which excites one nation to enthusiasm is not understood by another. This argument to us does not seem to be conclusive: the varied predilections of periods and of nations are, to some extent at least, the result of fashion, of the acceptance by the many of the arbitrament of a few. As between individuals of the same period and the same nation there may be variety of appreciation due to

* *The Meaning of Art: Its Nature, Role and Value.* By Paul Gaultier. With a preface by Emile Boutroux, member of the Institute of France. Translated from the third French edition by H. and E. Baldwin. With 35 illustrations. (London: George Allen & Co., Ltd. 5s. net.)



A CALIFORNIAN BUNGALOW.

difference of receptivity, just as in wireless telegraphy receivers differently tuned are receptive or non-receptive of the same messages according to their consonance with the emitter.

It may be admitted, however, that beauty is purely internal and emotional in its origin, even that it never exists without æsthetic emotion. In fact, no work of art is without æsthetic emotion. A work of art is distinguished from works of other sorts—not only from the industries, such as carpentry and pottery, but also from the inartistic in painting, sculpture, &c.—only in this: that it reveals æsthetic emotion, and may be classed according to the degree in which it contains it. The work of art is only worth what the feeling of its author is worth. Its merit is in direct proportion to the depth and extent, or, in a more direct way, to the qualities of the particular emotion which arouses it and which explains it.

The æsthetic emotion being essential to the character of a work of art, and this character being recognisable by the spectator, it follows that, in this sense, beauty has been made objective. As Gaultier says, “æsthetic emotion is crystallised or externalised, made sensible, in short, by the help of sounds, colours, lines, and reliefs in works of architecture, sculpture, painting, and music.” Further, our author proceeds to say, “The work of art, the embodiment of the sensibility of the artist, which utters itself, so to speak, through it, aims only to arouse æsthetically others’ sensibilities in turn; hence the distinction between the representations which are not artistic since they either arouse no emotion or—with no offence to Tolstoi—arouse them all (joy, pity, terror, &c.), except the æsthetic emotion itself, and others whose principal and perhaps sole characteristic is to excite it.” Hence we arrive at the conclusion formulated by Gaultier that “Beauty is æsthetic emotion made objective.”

The illustrations with which Gaultier’s book is adorned are selected from many different forms of art, and enforce many lessons as to characteristics of works of art in their expression of æsthetic emotion, on which lessons the author discourses at length.

NOTES AND COMMENTS.

LORD ROSEBERY has addressed a letter to the *Scotsman* raising objections to the proposals for the removal of the present prison from the Calton Hill, Edinburgh, and the erection of new public offices in its place, and he asks (1) Is there any proved necessity for this vast transformation? (2) Is there any such urgent necessity as would justify this vast expenditure in these days of heavy taxation? (3) Do the people of Edinburgh, the party

chiefly concerned in the change, desire it? Have they been in any way consulted as to the transformation of their city? (4) Why has the prison suddenly become impossible? (5) Why, with scores of excellent houses vacant, can the various Government Boards and clerks not be housed in them, instead of spending a huge sum in barracks for them on the Calton Hill? (6) Would the new buildings be an adequate substitute for the picturesque castellated structure we know so well? (7) Is it judicious to erect on the most conspicuous site in the city a huge and painful monument of the new bureaucracy? There is no doubt that there is a certain amount of picturesqueness in the present “castellated structure” viewed from a distance, but inasmuch as there is an intention that the new public offices should be made the subject of an open public competition, we opine that competing architects will take into account the position in which the new offices are to be erected, and it is not beyond the bounds of possibility that something still more suitable as a landmark in the civic scenery of Edinburgh may be the result.

The approval by the Corporation of Glasgow of the plan selected in competition and subsequently perfected by the architects, Messrs. Watson & Salmond, in consultation with the Municipal Buildings Committee, was only decided by the comparatively small majority of forty-five to forty-one, after a considerable amount of opposition and adverse criticism. This, however, does not necessarily prove that the proposals were unwise or unsatisfactory, for it may be regarded as a truism that whatever is proposed in the way of architectural work in any municipal corporation will always find opponents.

The death of Mr. George Tinworth, the well-known modeller in terra-cotta, removes from among us one of the most original sculptors of the Victorian era. His chief work was accomplished during the Gothic revival, and while the influence of Ruskin and the encouragement of George Edmund Street were potent; but up to the very day of his death he was still engaged on work at the Doulton potteries at Lambeth. His work can be found in York Minster, Truro Cathedral, Wells Cathedral, Sandringham Church, St. Mary’s, Lambeth, the Guards’ Chapel, the Alexandra Palace, the English Church at Copenhagen, the Church of the Mediator at New York, and elsewhere.

It is rather amusing to read comments in the daily press, and especially in provincial papers, on new buildings that have been erected, and the latest occasion of this is the report that a new school at Lowestoft has been erected on an original plan of a new type, in which the assembly hall is disconnected from the class rooms.

The novelty of this arrangement is somewhat worn to those who know anything of the school planning of recent years in England, to say nothing of Germany and the United States.

The application by the Corporation of Birmingham for leave to prepare a town-planning scheme for North Yardley and Stechford encountered, in the course of the usual Local Government Board inquiry, the inevitable amount of opposition, some of which appears to be peculiar to the working of the Act. In particular, it was brought forward at this inquiry that even landowners who were in favour of town-planning as a general principle were practically forced to offer opposition at the particular stage in which the area was to be determined without settlement of details. As a representative of one of the owners said: "Landowners are in a hopeless position if they are asked to make their election without having the slightest idea of what is going to happen to their land." The Local Government Board inspector put it quite clearly, that no objection can be raised to anything which is not before the Board at the present time. The only thing before the Board at this stage is whether there is a case for a town-planning area.

We are glad to learn that fire-protection arrangements at Ely Cathedral are being carried out by Messrs. Merryweather & Sons in order to improve the existing provision for the protection of the Cathedral against fire. The Ely Fire Brigade possesses a powerful steam fire engine, which can be quickly on the spot if required, and for the purpose of supplying this engine with water four large underground tanks, fed by the Urban Council mains are already provided. In order to assist the Ely Brigade in getting to work quickly, a system of dry mains is being laid, starting from the corner of the Lady chapel on the north side of the Cathedral, at which point a connection for the delivery hose from the engine is placed, and continuing round the east end of the Cathedral up to the main roof level at four points and to the lantern roof at one point. Fifteen hydrants will be fixed on this main at various points. Should it be necessary to bring the steam fire engine into operation, considerable time will be saved owing to the fact that the provision of this dry main will obviate the necessity of laying out long lines of hose-piping, as it will merely be necessary to connect a short length of delivery hose from the engine to the outer end of the main, and then attach a length of hose to the hydrant which is nearest the scene of outbreak. A similar dry main has recently been installed by Messrs. Merryweather at St. Paul's Cathedral, London. At Ely Cathedral the Council's mains also exist, carried from the north side and the south side, and upon each of these mains there are two hydrants at the triforium level. The pressure of water obtained from this service was of very little use, and accordingly specially designed hydrants, with pressure augmentors fitted thereto, will be fixed at these points, in order that the best advantage may be obtained from the Council's service, as, of course, it would be unwise to rely entirely on the Ely steam fire engine, seeing it is within the bounds of possibility that the engine might be elsewhere engaged at the time that its services were needed at the Cathedral.

The Chertsey Rural District Council are at Chobham up against one of the difficulties met in the provision of houses under the Housing of the Working Classes Act. In order to be self-supporting, the houses would have to be let at 5s. 9d. per week, and in the discussion of the question before the Council, it was practically unanimously agreed that 5s. 9d. per week was a higher rent than the expected tenants would be able to afford. The Council therefore are faced with the dilemma that Chobham must either be deficient in housing accommodation for the working classes or other people must pay part of the rent through the rates.

The safeguarding of the existence of the remains of the great stronghold of Alan the Red at Richmond has been the occasion of some interesting work by the Office of Works, to whom, under the provisions of the Ancient Monuments Act, the Duke of Richmond handed this unique relic of feudal times with a view to its preservation as a national treasure. The old Norman warrior-builders did not make sufficient or effective provision against subsidence of their massive constructions by the sliding of the clay stratum troubled by a spring. They endeavoured to get a firm base by means of oak beams, some of which, nearly 900 years old, still remain. Others that have decayed have left the print of the grain of the wood on the surrounding clay. In the twelfth and thirteenth centuries buttresses were erected to prevent further movements of the heavy masonry, but these proved ineffectual.

The problem before the Office of Works was to arrest this sliding movement of the wall and its clay foundation. The method adopted has been to drive in steel piling to form a solid palisade on the outer side of the wall. The piling pierces the clay, goes down to a depth of 30 feet into the underlying bed of gravel, and is backed up with concrete. On the inside of the wall concrete has also been sunk to the level of the gravel, to prevent movement on that side. The spring in the clay which has caused all the mischief has been tapped and the water carried safely away by means of a conduit.

Motor traffic has been the active agent in restoration to use of the old Roman Fosse Way, whose continuity had become broken in its course between Leicester and Newark. A writer in *The Motor* says: "Leaving Leicester for the north, one runs for a mile or two, nearly into Syston, along the Melton Mowbray Road, and then takes the left-hand fork where the signpost points to Six Hills. This Six Hills Road is far below the usual Leicestershire main-road standard, and we found it rather rough as well as narrow, and, for aught that was to be seen, the Leicestershire authorities are not co-operating with their Nottinghamshire *confrères* to render this potentially important route worthy of the twentieth century.

"The traveller knowing nothing of county boundaries might well be staggered at the present moment on reaching the lonely junction of by-ways which goes by the name of Six Hills (were the six hills six tumuli, one wonders?), for here, where but a short while ago this second or third-rate road continued on as a boggy greenway, one now runs on to what, at the moment of writing at any rate, it is not extravagant to claim as probably the finest and nearest perfect piece of country main road in Europe. Of generous width, with ample verges, and with a waterproof surface as smooth as finest asphalt, this magnificent motorway carries one on amazed through the empty pasture fields of South Notts. When it is remembered that the county surveyor bears a name so renowned for capacity and sound common-sense in road-making and mending as Mr. Hookey's, amazement may be lessened; but surprise at the transformation is not so easily dissipated."

The British Fire Prevention Committee have just issued an interesting report on "Fire Tests with three window openings filled in with 'Luxfer' electro-glazing," which, in the words of Mr. Ellis Marsland's Note, "is a most useful contribution to the Committee's records on the fire resistance of various forms of special glazing, as it again indicates that forms of special glazing are being commercially produced that can serve most efficiently to stop the spread of a fire of considerable severity." It is gratifying to find that our manufacturers have thus been able to solve one of the weakest points in the prevention of fire in crowded areas.

The London County Council's Central School of Arts and Crafts opens its session for 1913-14 with a full programme of classes and lectures in various branches of artistic craftsmanship, including instruction in architecture and the building crafts. There are at this institution both day and evening classes, and the principal sections are: Architecture and the Building Crafts; Silversmiths' Work and Allied Crafts; Book Production; Cabinet Work and Furniture; Drawing, Design and Modelling; Decorative Needlework; Stained-glass Work; Mosaic and Decorative Painting.

We have received from the Royal Technical College, Glasgow, their calendar for the one hundred and nineteenth session (1913-14). It is a neatly compiled and well-printed shilling volume of 480 pages and with a carefully compiled index. The nucleus of the college dates in part as far back as 1796, when Anderson's College was founded; but in its more modern form it was constituted as recently as 1886 as the Glasgow and West of Scotland Technical College, its present title having been granted by H.M. King George in 1912. Since then it has been affiliated to the University of Glasgow. The calendar contains very detailed information of the various activities of the college.

UNIVERSITY OF LONDON.

THE University Extension Board have arranged for the coming session a number of very interesting courses of lectures on history, literature, art, architecture, natural science, economics, &c., to be delivered in various parts of London and the suburbs. Amongst these is a fully illustrated course on the Art and Craft of Architecture, to be given at the Central School of Arts and Crafts, Southampton Row, W.C., on Thursday evenings. In the Michaelmas term Mr. S. C. Kaines Smith, well known to University Extension audiences as a brilliant lecturer, will deal with the growth of decorative arts from 1050 A.D. to 1550 A.D. These will be followed by twelve lectures on the Art and Craft of English Architecture by Mr. Theodore Fyfe, in which, from an historical point of view, the application of stonework, woodwork, and brickwork to decorative uses in English buildings will be very fully dealt with. The subject will be treated in a popular and non-technical way, but the course will be equally suitable for the professional as well as the non-professional student.

EAST AFRICA ARCHITECTURAL ASSOCIATION

AN architectural association has been formed in the two British Protectorates of British East Africa and Uganda, called "The East Africa Architectural Association." One of its first objects is the drafting of a Bill to bring before the legislative councils for the registration of architects in British East Africa and Uganda.

The officers for the first session are as follows:—President, Mr. R. M. Geater; Vice-President, Mr. W. M. Robertson; Hon. Treasurer and Secretary, Mr. Harold E. Henderson, Lic.R.I.B.A.; Council, Messrs. Le Roux, Tate-Smith, Hurle Bath and Gow.

COMPETITION NEWS.

BRIDPORT.—The assessors in the Cottage Hospital competition—Messrs. Frederick Wheeler, F.R.I.B.A., and Sydney Searle, A.R.I.B.A.—have placed first the design submitted by Messrs. F. H. Shayler, F.R.I.B.A., & E. R. Bill, M.S.A., of Wrekin Hotel Chambers, Wellington, Salop. Thirty-three designs were submitted.

NEWCASTLE-UPON-TYNE.—At a meeting of the Estate and Property Committee of the Newcastle Corporation on Monday last the plans were considered from architects for the erection of baths at Benwell, Heaton, and Walker. It was decided to recommend the Council to adopt the plans of Messrs. Wright & Chapman, of Newcastle, for the Walker Baths, and those of Mr. Alfred W. S. Cross for the Heaton and Benwell Baths.

OTTAWA.—A notification has been received by cablegram from the Department of Public Works at Ottawa that the date for receiving inquiries relative to the competition for the proposed Government buildings at Ottawa has been extended to October 30.

SOUTHAMPTON.—The Board of Guardians propose to invite competitive designs for a boys' home to be erected on their Hollybrook Estate.

ILLUSTRATIONS.

CITY OF LEEDS TRAINING COLLEGE.

THE planning and arrangement of the college buildings are the result of close co-operation between the architects and the Education Authority.

The general scheme, including the internal planning of the college and the halls of residence, was evolved by the Director of Education (Mr. James Graham) and the committee's architect (Mr. Fred Broadbent). Designs for the elevation of the college and halls of residence were invited from Leeds architects.

Twenty-seven architects submitted designs for the buildings in accordance with the plan prepared for their guidance. Sir Aston Webb, the assessor appointed by the committee, selected the design of Mr. G. W. Atkinson as the best, and placed next in order the designs submitted by Mr. S. D. Kitson, Mr. A. E. Kirk, Mr. W. Peel Schofield, and Messrs. P. Robinson & W. Alban Jones.

The Education Committee therefore arranged for a distribution of the architectural work.

The laying out of the site and grounds, and the building of the college, Brontë Hall, the houses of the Principal and Vice-Principal, the games pavilion, the swimming bath, the laundry, and the lodges, Mr. G. W. Atkinson; Fairfax Hall and Cavendish Hall, Mr. Sydney D. Kitson; Caedmon Hall and Leighton Hall, Mr. Albert E. Kirk; Priestley Hall, Mr. W. Peel Schofield; Macaulay Hall, Messrs. Percy Robinson & W. Alban Jones.

The buildings have been erected by Messrs. Henry Atkinson & Sons, Ltd., of Leeds; the electric lighting equipment has been installed by Messrs. S. Dixon & Son, Ltd., Leeds; and the heating equipment by Messrs. J. F. Phillips & Son, Ltd., Leeds.

The furniture and fittings of the college and halls of residence have been specially designed by Mr. Fred Broadbent, the architect to the Leeds Education Committee, and have been supplied by Messrs. Illingworth, Ingham & Co., Mr. Victor Lightman, and Messrs. Marsh, Jones & Cribb.

The college is built in the Georgian style, and stands on elevated ground commanding a wide view in every direction.

The buildings consist of an educational block, together with eight halls of residence—three for men and five for women—and provide accommodation for 480 students—180 men and 300 women. There are in addition houses for the Principal and Vice-Principal, a swimming bath, laundry, games pavilions, and lodges.

In the college the rooms are grouped round two large quadrangles—one for men and one for women. A large assembly hall capable of holding 800 people separates the two quadrangles. The lecture rooms for ordinary class purposes are spacious and well lighted, and in addition to the ordinary lecture rooms there are chemical, physical and nature study laboratories, lecture theatres, geographical and historical laboratory, educational museum, needlework rooms, singing and music rooms, a gymnasium for men and one for women, a library and students' common rooms; whilst attached to the science and the art sections is a conservatory from which plants can be obtained for art work or in which experiments in nature study may be carried out.

There are eight halls of residence in close proximity to the college building.

For men: The Grange, Cavendish Hall, Fairfax Hall.

For women: Brontë Hall, Leighton Hall, Caedmon Hall, Priestley Hall, Macaulay Hall.

In each hall accommodation is provided for sixty students, in addition to tutors and domestic staff.

For each student there is a study-bedroom with specially designed furniture, and there are also a spacious hall, a library, and a common room for the use of the students.

Special rooms are provided for the resident tutors, and a visitors' room adjoins the central entrance.

Adjacent to the students' entrance are changing rooms, shower baths, lavatories, clothes and boot-brushing rooms, all of which are cut off from the main building in order that, as far as possible, dust and dirt may be kept out of the residential portion of the hall of residence.

The kitchens, separated from the dining hall by a commodious china pantry and servery, are equipped with the most modern gas and fire appliances to ensure efficient and economical working. The kitchens and domestic quarters, &c., are cut off from the main building by a communicating door.

Ample provision is made by stone staircases and escapes to ensure safety in case of fire.

CLIFFORD CHAMBERS.

A NEW SKETCHING GROUND FOR ARCHITECTS.

By SIMONY HEATH.

Illustrated by the Author.

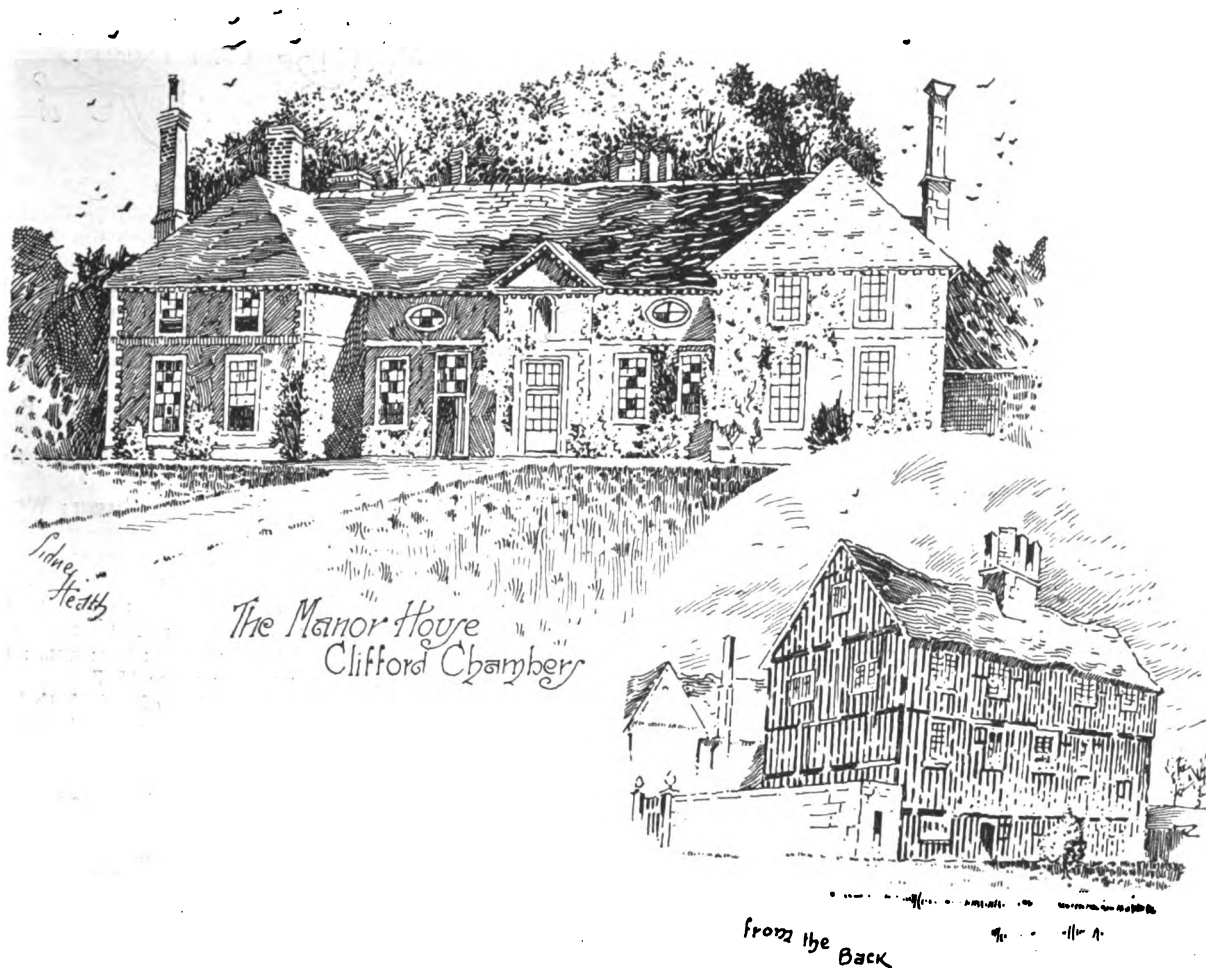
OLD-English villages that have not been sketched and photographed *ad nauseam* are rare, but they may still be found by the enterprising artist who diligently explores the lanes and field-paths that lie on each side of the main highways. True is it that there is some risk of a lane which seems to invite closer attention ending abruptly in a *cul de sac*; yet, as a general rule, the unconventional explorer will reap many rewards in the way of ancient churches and delightful villages that lie in a leafy hollow or line the banks of a placid stream.

Although it lies just off the Shipston Road, some three miles only from Stratford-on-Avon, the little village of Clifford Chambers is practically unknown, and it is doubtful if one artist in a hundred has ever heard of the place. Yet there are few spots, even in the much-vaunted Shakespeare

The north doorway has been walled up, but the circular heads of a very early type remain, and are repeated on the south door of the nave. The present building, which was restored in 1886, consists of chancel, nave, and tower, the last of Perpendicular date with older foundations. The present chancel arch and the roofing of the church are modern. The font is seven-sided, rather a rare form, while the pulpit is a fair specimen of Jacobean work. In the vestry is a large oak chest, heavily banded with iron, and dug out of the solid trunk of one of the famous oaks of Arden. Here also is an old oak bier of exquisite workmanship, which was bequeathed to the church by a John Shakespeare, who, by his will dated 1608, gave a "bier which I had made at my own proper cost and charges."

The very remarkable altar cloth is of crimson velvet, embroidered with gold and silver work. It is said to have formed a part of the general trappings of Catherine of Aragon, her initials appearing round the border. There is also an embroidered cushion with similar decoration.

The monuments consist of two fine brasses and an elaborate composition in alabaster to the memory of Sir



country, that are better worth visiting for its old manor house, thatched cottages, and church. Then the picturesqueness of the place is only half its interest, for the village is historically noteworthy as possessing, in its old half-timbered rectory, the house wherein resided Shakespeare's schoolmaster, Walter Roche, when that pedagogue became Rector of Clifford Chambers.

We have definite evidence that the Bard of Avon was a friend of the Rainsfords, the then lords of the manor, who entertained such distinguished guests as William Drummond and Michael Drayton, the latter of whom, in his "Polyolbion," wrote:

"Dear Cliffords' seat, the place of health and sport,
Which many a time hath been the Muses' quiet port."

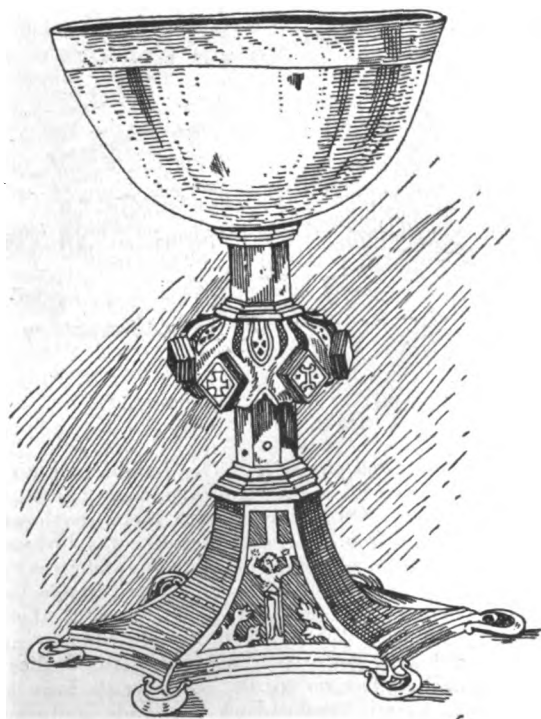
The thatched and half-timbered cottages line each side of a broad road, which ends with the manor house, up to which it continues in the form of a short drive. There is no doubt that the church, the manor house, and the mill formed the nucleus of the settlement, the rows of cottages having sprung up along the sides of what was originally a trackway that led from the main road to the manor house.

The church, although of small dimensions, is one of the oldest in the neighbourhood, and is of Saxon foundation.

Henry Rainsford and his wife. The knight and his lady kneel on either side of a faldstool with their hands in the attitude of prayer. On a slab beneath them are the effigies of their three children. The knight wears a breastplate, backplate, pauldrons, rounded coudes, and vambraces. The legs are cased with genouillères and hinged jambs, which meet laminated solerets without spurs. Round the neck is a falling ruff, and the wrists have pleated cuffs. The lady wears a flowing gown with a tight-fitting bodice and pointed stomacher, but no girdle. The wrists have plain deep cuffs; the hair is brushed back over pads, and confined by a hood with upturned veil. The monument is supported by two Renaissance pillars on plinths and corbels, bearing a plain entablature and semi-circular canopy. Beneath the panelled vaulting are the escutcheon, crest, and inscribed tablet, while above the lady's head her arms appear on a lozenge. The figures are not coloured, but traces of paint are visible on the sword belt; the gauntlets are black, and the faldstool cloth is coloured green. With the exception of the *gules*, no tinctures remain on the shields. Taken altogether, this is one of the most interesting early seventeenth-century monuments in the Midlands. Another remarkable piece of church furniture here is a



pre-Reformation chalice, bearing a maker's mark, from which we learn that it was made in 1494-5, and, with the exception of an example at Wylie, Wilts, is the earliest dated chalice in this country. Its height is $6\frac{1}{2}$ inches, the bowl being $4\frac{1}{2}$ inches in diameter and $2\frac{1}{4}$ inches deep. The stem is hexagonal, the six facets being flat and lozenge-shaped. The first facet bears a cross pattée, the remainder being engraved with Gothic letters that make up the name Jesus. The hexagonal foot measures $4\frac{3}{4}$ inches from point to point, the



*Chalice in
Clifford Church*

points being guarded by crescents, so that they should not tear the altar cloth when placed upon it. The front base panel depicts the Crucifixion, the ground being hatched with lines, so that it would hold the enamel with which it was formerly covered. The unique hall-marks comprise three stamps: (1) A leopard's head crowned; (2) an eagle (the maker's mark); and (3) the date letter, a Gothic capital R.

The bells, five in number, were recast in 1771, with the exception of the fifth—recast in 1773. The recasting was done by the Bagleys, the famous bell-founders of Chalcombe, in Gloucestershire. The bells bear the following inscriptions:—

1. I. M. B. MADE: ME: THE: LEADER: OF: THIS: PEAL: TO BE: 1771.

2. M. BAGLEY: MADE: ME: 1771: JOHN: SMITH: WILLIAM: COOKS: CHVRCH: WARDENS.

3. M. B. MADE: MEE: 1771: JOHN: SMITH: WILLIAM: COOKS: C.W.

4. JOHN: SMITH: WILLIAM: COOKS: CHVRCH: WARDENS: WILLIAM: BAGLEY: MADE: MEE: 1771.

5. AND: NOW: I: HOP: TO: PLEASE: YOV: ALL: AND: SING: TO: THE: GREAT: CREATERS: PRAYS: MY: FATE: HATH: BEEN: VNFORTVNATE: BEE: FOAR: MY: SELF: COULD: RAIS: MATTHEW: BAGLEY: MADE: MEE: 1773.

In 1885 the brass here illustrated of Elizabeth Marrowe (née Rainsford) was found lying in two pieces in the church. The pieces have been joined, and the restored brass placed against the north wall of the chancel. The lady is wearing a hood nearly hidden by a calash, which covers the head and shoulders and extends down the back until it nearly reaches the ground. Encircling the neck is a ruff, but in place of the usual frills, the sleeves end with neat cuffs. The rather full gown has an embroidered stomacher peaked in front, while a farthingale supports the skirts, which reach to the ankles. The shoes are decorated with rosettes. The babe wears swaddling clothes, hood, and ruff, the breast being covered with a pleated bib. The inscription, omitted from the illustration, reads:

UNDER THIS STONE LYETH THE BODY OF ELIZABETH DAUGHTER OF HERCVLES RAINSFORD OF CLIFFORD IN YE COVNTY OF GLOC: ESQUIRE MARRIED TO EDWARD MARROWE SONNE AND HEIRE OF SAMVEL MARROWE OF BARKSWELL IN THE COVNTY OF WARWICK ESQR. WH ELIZABETH DECEASED THE 29TH OF OCTOB' 1601.

The old rectory is a charming half-timbered building, with an external stone stairway, a somewhat rare feature in the Midlands, although common enough in some counties. The building is now sub-divided into cottages, and inside may be seen two good stone chimney-pieces, made up of plain shields set in quatrefoils.

The manor house, the ancestral home of the Rainsfords, was sequestered during the Civil Wars. It is built round three sides of a courtyard, and was enclosed originally with a moat, of which portions, now drained, remain. The back part of the house has some splendid beam work, and a number of blocked-up windows, the oak mullions of which have traces of red paint. This back portion is the oldest part of the house, and dates from the reign of Henry IV., when Clifford Chambers formed part of the estates of the great



*The Old Rectory
Clifford Chambers*

Norman Abbey of Tewkesbury, hence its name—Clifford being the village and Chambers denoting the rooms or chambers provided for the monks and used by the abbot on his visitations.

The front part of the house is a good and pleasing example of the domestic architecture of the time of Queen Anne.

THE VIA APPIA AND THE AQUEDUCTS OF ANCIENT ROME.*

THE Via Appia, the queen of Roman roads, as Statius calls it, played a very important part in the advance of the Roman power into South Italy, for the Romans thoroughly understood the military necessity of good communication with their base. Constructed originally by the censor Appius Claudius Cæcus as far as Capua in 312 B.C., it was prolonged successively to Beneventum, Venusia (where a colony of 20,000 men was placed to hold the territory already won), Tarentum, and Brundisium (Brindisi), which it probably reached in 245 B.C., the date of the foundation of the Roman colony there. After the Punic wars it became the chief route to the East, Brundisium being the usual port of embarkation. As far as Beneventum its course is certain, and considerable remains of it exist; but beyond this town there is considerable doubt about its course, and a careful examination on the spot of the possible routes was not sufficient to give certainty. From a point shortly before Venusia its line is once more fairly clear, but almost all traces of it have been obliterated by one of the great sheep tracks, known as *tratturi*, which traverse this portion of Italy. There is also considerable doubt about the route taken by Horace between Beneventum and Canusium; beyond the latter town, if not before, it coincided with the later Via Traiana, constructed by the emperor whose name it bears. There are hardly any traces of it left, however, except in the mountainous region between Beneventum and Aecæ (mod. Troia), and in the valleys of two rivers south of Foggia, where considerable remains of its bridges exist. In the neighbourhood of Bari, in the territory traversed by the Via Traiana, are the only dolmens and menhirs to be found in Italy, except the group in the Terra d'Otranto, the extremity of the heel, and a somewhat unexpected discovery was that of a group of four hitherto unknown menhirs close to the road.

The principal supplies of water for ancient Rome were derived from the upper valley of the Anio. The second of the aqueducts in point of date, constructed in 272-269 B.C., drew its water and its name (Anio Vetus, the old Anio) from the river itself; while the third, the Aqua Marcia, built in 144-140 B.C., made use of some very considerable springs on the right bank of the river, which gushed forth from beneath the limestone rock. During the following century use was made of various springs in the more

immediate neighbourhood of the city, of which the Aqua Virgo was the most important; but Caligula's engineers returned to the Anio Valley, and the Aqua Claudia and Anio Novus, both completed by Claudius in A.D. 52, drew their water respectively from the springs which the Marcia had already tapped and from the river. The remains of these four aqueducts are very considerable, and comparatively little known; and by careful research on the spot it has been possible to determine their course with fair accuracy from the springs to the city, even in the portion where they ran underground through the lower slopes of the Alban Hills: for here their presence is betrayed by the remains of the shafts which were used for ventilation and for cleaning, and by the fragments of calcareous deposit which were removed from their channels. Inasmuch, however, as they travel close together it would be very desirable that the remains should be accurately levelled; a certain amount of excavation would be necessary, and the enterprise may, it is to be hoped, one day be undertaken by the Italian authorities.

REINFORCED CONCRETE WALL FOOTINGS AND COLUMN FOOTINGS.*

(Concluded from last week.)

WHEN footings are tested on a bed of springs, the deflection produced in the beam results in compressing the springs at the middle of the footing more than at the ends, and hence the pressure will not be uniformly distributed along the length of the footing. If the compression of the springs at points along the length of the footing is known, and also the deflection of the footing at these points, the distribution of the load may be determined and the resulting bending moment calculated. Fig. 3 illustrates the effect of the deflec-

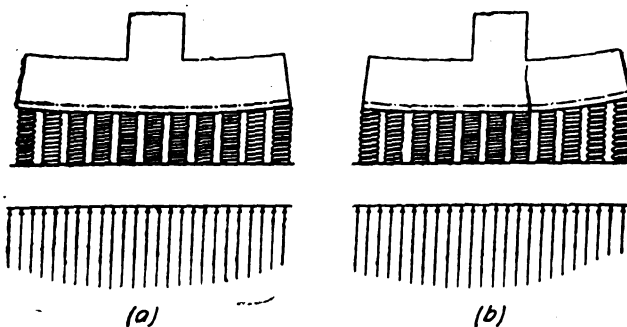


FIG. 3.

tion of the footing upon the distribution of the load. The bending moment so calculated will be somewhat less than that based on uniform distribution of the load, and the

* Abstract of a report by Mr. T. Ashby, M.A., D.Litt., read before the British Association.

* Abstract of Bulletin No. 67 of the University of Illinois Engineering Experiment Station. By Professor Arthur N. Talbot.

amount of the resulting tensile stress, bond stress, and vertical shearing stress will be less. The amount of the difference will depend upon the stiffness of the springs and the deflection of the footing under load, but within so-called critical loads it will not be large. Of course, in designing footings, our knowledge of the distribution of the pressure by the soil is too imperfect to consider the effect of deflection upon distribution of pressure.

In testing on a bed of springs the load may not be symmetrically applied, and one end of the footing may receive more load than the other. The stresses in the end in which the springs receive the greater compression will, of course, be larger than values based on uniform distribution of load.

6. *Analysis of Column Footings.*—Fig. 4 represents a column footing of the form used in the tests. The stem representing the bottom of a column or a pedestal block will be termed the pier, and its lateral faces the faces of the pier. The load will be considered as applied uniformly over the top of the pier and the upward pressure as uniformly distributed over the lower surface of the footing. It is seen that the footing may be considered to be a cantilever slab (rather

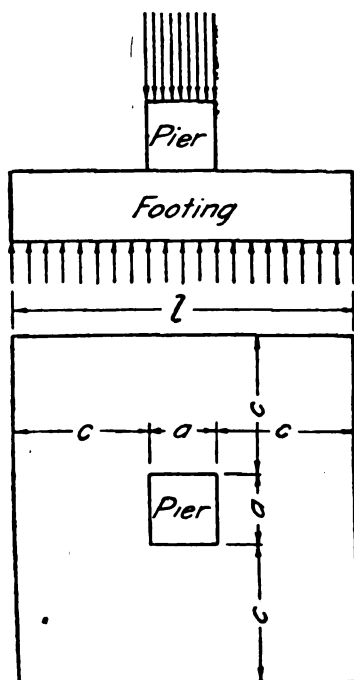


FIG. 4.

than cantilever beams) supported at the top over a central area and loaded uniformly by an upward load, and that as the projecting portion of the footing deflects upward its surface will be bowl-shaped, in reality a double-curved surface. The determination of the distribution of the stresses over the various parts of the column footing is a much more difficult problem than is presented in wall footings.

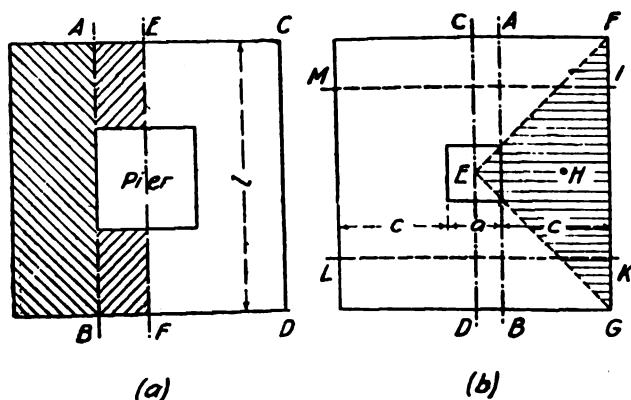


FIG. 5.

Various methods of calculating the strength of column footings have been proposed. In some cases the offsets have been considered as cantilever beams having the full width of the footing, and the full load on this area is considered to be taken by this beam, the critical section being at AB, fig. 5. Although the load at the corners is counted twice, the error is not great when the offset is small in comparison with the dimensions of the pier. If the dangerous section is con-

sidered to pass through the centre of the footing, EF, fig. 5 (a), a greater discrepancy exists. A common method of design is to consider that one-fourth of the total load is applied on the triangle EFG, fig. 5 (b), and having found the centre of pressure (as H) of the part of the load at one side of AB or CD (according to which is used as the dangerous section), to calculate the bending moment as the product of this amount of load by the distance from this centre of pressure to AB or CD, the dangerous or critical section.

When the bending moment has been obtained by one of these methods, it is considered to be resisted by a beam IKLM, Fig. 5 (b), of width somewhat greater than the width of the pier, say, the width plus once the depth of the footing, according to the views of the designer. That is to say, the reinforcement in this assumed width is considered to develop stresses which altogether are sufficient in a beam of the depth of the footing to withstand the calculated bending moment. If the cross section of the steel lying within the assumed width is A , the resisting moment will be $M = A f_j d$. The steel lying outside the dotted lines is considered to carry load to the beam formed by the reinforcement which lies at right angles to these lines, just as the steel parallel to and near FG carries load to the beam IKLM, and in this method of design no account is taken of it in the main beam. Whether the spacing of the outer bars should be the same as that of the interior or be greater is then left as a matter of judgment. In the determination of both bending moment and resisting moment, then, the practice of engineers varies considerably.

A rational analysis of the stresses would involve a determinate expression for the deflection of the footing at every point of the cantilever slab and also for the radius of curvature in each direction. A full treatment would include a consideration of the effect produced by having stresses act at right angles to each other and of the action of other combined stresses. However, it may be expected that this effect will not be large, as in reinforced concrete footings the presence of stresses in two directions affects principally the amount of the compressive stresses, and the compressive stresses will not be the controlling element of strength in footings as ordinarily designed. It is easily seen that an analytical treatment of a cantilever slab of this kind which approached completeness would be very complicated. This and the uncertainty involved in the assumptions made at some steps of the analysis renders the correctness of the results of the mathematical work of such an analysis quite problematical. In view of the complexity of the problem and the uncertainty of portions of the work, it seems futile to attempt to derive thoroughly rational formulas for stresses in column footings. This being so, it seems best to utilise approximate solutions based on other considerations.

A study of the phenomena of the flexure of the column footing may be helpful in judging of the division of the load in the production of bending moment in the two directions and of the development of stress in the different parts. It is apparent that the stresses will be proportional to the deformations developed and that the deformations at any point will depend upon the curvature at that point. It will be recalled that in the analysis of beams in mechanics of materials the stresses developed are found to be inversely proportional to the radius of curvature or directly proportional to the curvature. At corresponding points on similar sections the curvature and hence the stress may be considered to vary somewhat as the change of deflection at these points. With these considerations in mind, we may be able to judge of the effect of the varying curvature in different parts of the footing.

Fig. 6 represents in a general way the form which the footing under load may be expected to take along various sections. The full lines in the lower figure represent the deflections or flexure curves of vertical sections taken along the dotted lines. The vertical rise at a corner B will be the sum of the deflection at M (KG) and the deflection of the lateral face BC (MZ). The three sections through the faces of the pier and the centre of the pier which give the flexure curves LJI, PNM, and TRQ, may be considered to have nearly the same stress. The section at a lateral face of the footing will give a flexure curve AYB which will generally have less deflection and less flexural curvature at Y (and hence less stress) than is to be found in the section at the face of the pier which gives the curve LJI. The amount of the difference between these two curves will depend upon the relation of the cantilever span to thickness of pier and to amount and distribution of reinforcement. For sections

between AB and LI the flexure curves and the conditions of curvature will range between those of the limiting curves. If we knew the flexure curves in all parts of the footing we should be able to get at the distribution of stresses.

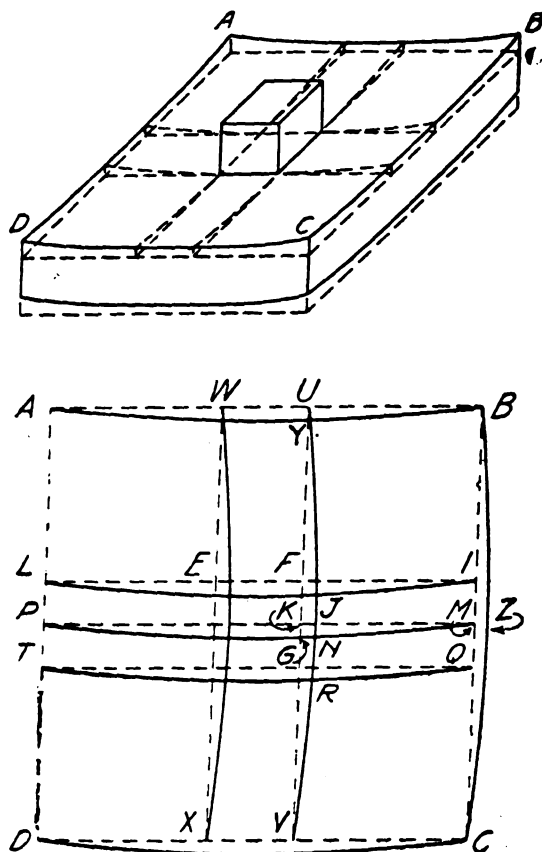


FIG. 6.

If, with two-way reinforcement, we consider the load or pressure on the footing to be carried by two beams or sets of beams running parallel to the sides of the footing, the proportion of load or pressure taken by each beam from any

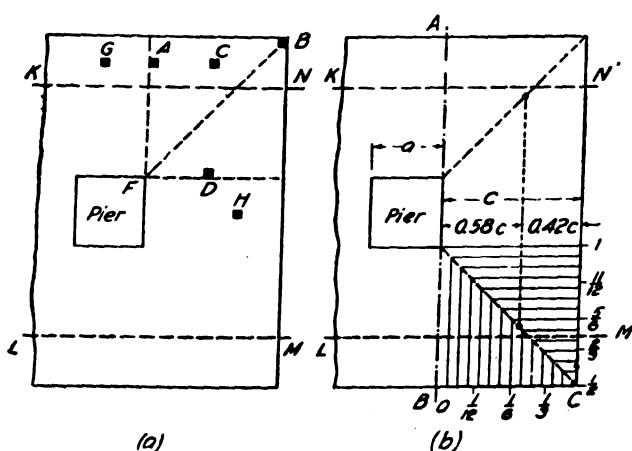


FIG. 7.

elementary area may be considered to depend in some way upon the relative deflection of the beams in the two directions. In Fig. 7 (a), for convenience of description, consider the top of the diagram north, and that the footing is formed of a beam running in the east and west direction, and of another running in the north and south direction. For an element at A the deflection laterally from the north-and-south beam will be very slight, and the total load on this element may, without much error, be considered to produce bending in the beam running in the north and south direction. For the corner area B part of the load may be considered as producing moment in the beam which runs in the north and south direction and part in the beam which runs laterally (east and west). For an element at C the amount of deflection of the footing from C to A will be much less than that from C to D; it seems evident that the proportion of load at C producing moment in the north-and-

south beam is much greater than that acting on the east-and-west beam. Similarly, at D a greater proportion acts on the east-and-west beam than on the north-and-south beam. Along the diagonal line BF we may consider that half of the load acts on each beam. At G all acts on the north-and-south beam; at H none of it.

After making a study of the flexure curves obtained on a number of the column footings tested, the fractions given on the diagram in Fig. 7 (b) were taken as roughly representing the proportion of the unit-load at the points indicated which acts upon the east-and-west beam to produce bending moment and curvature. For the variation of the proportions along the lines of the diagram between the limits noted a curvilinear relation was assumed, and a process of approximate integration was applied to the load division problem. Of the part above the diagonal line, approximately two-thirds of the load or pressure upon the triangle was found to go to produce bending moment in the east-and-west beam, and of the part below the diagonal line approximately one-third, the remainder in both cases going to produce bending moment in the beam in the north and south direction; and of course altogether one-half of the load on the corner square must be considered to produce bending moment on each beam. By the calculation, under the assumed division of load, the centre of pressure of the various parts of the load tributary to the north-and-south beam from a corner square was found to be $0.58c$ from a line

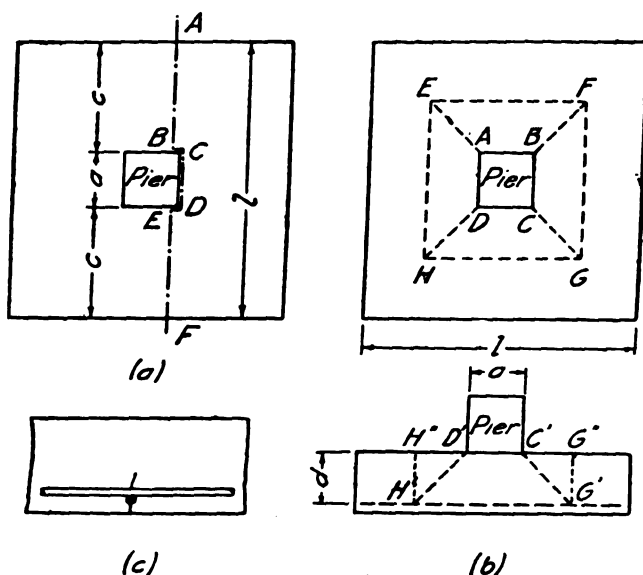


FIG. 8.

through the face of the pier. That is to say, this analysis results in considering that the pressure on the corner square affects the bending moment of the north-and-south beam the same as if one-half of the load of this corner square were placed at a point distant 0.58 of the width of the square from a line through the face of the pier, see Fig. 7 (b). As the method of assuming the division of load will not warrant refinement of calculation, it seems well to adopt the more convenient and more conservative value of $0.6c$ for the position of the centre of pressure, and this value will be used in the calculations in this bulletin. It may be added, also, that other methods of attacking the problem locate the centre of pressure not far from the position here chosen.

The location of the critical or dangerous section for which the bending moment is to be found is also of importance. For footings made in such a way that the pier and footing are bonded together sufficiently not to permit failure by horizontal shear between them, as were all the column footings described in this bulletin, a section at the face of the pier CD, Fig. 8 (a), will be the critical section for the part of the beam immediately in front of the pier. For the part of the footing on either side of this, the critical section possibly may be somewhat back of the face of the pier. From some of the tests which were made it would seem that a combination section made up of three sections, one coinciding with the face of the pier and the other two slightly back of this, as shown by AB, CD, and EF in Fig. 8 (a), might represent the critical section. However, after making a study of all the tests, it is concluded that a section through the face of the pier is fairly representative of the tests, and this section will be used in the calculations in this bulletin. For very broad footings a section somewhat back of the pier

may properly be assumed. The formula for the critical bending moment may then be expressed as follows:—

$$M = \left[\frac{1}{8} a(l-a)^2 + \frac{3}{40} (l-a)^3 \right] w$$

or

$$M = \left(\frac{1}{2} ac^2 + 0.6c^3 \right) w \quad \dots \quad (27)$$

where a is one dimension of the square pier, l one dimension of the square footing, and c is the dimension of the offset of the footing, see Fig. 8 (a).

The bending moment thus obtained goes to produce curvature across the section and may be said to be resisted by the entire section, but the stresses may be expected to be different in different parts of the section, being a maximum under the pier and having the least stress at the edge of the section. The range in stresses may be illustrated by Fig. 9, where the stress in the reinforcing bars at right angles to the section considered is represented by the ordinates in the diagram. The stress of the bars lying under the pier may be considered to be uniform and represented by f . The bars in the projection of the footing which lie near the pier will be stressed nearly as high. The stress in a rod near the edge of the footing will be less, say from $0.25f$ to $0.75f$, depending upon the proportions of the footing and the distribution of the reinforcement. Between the pier and the edge of the footing the stress in the bars will vary by some law, probably a curvilinear relation. The total resisting moment developed in the full width of beam may be made

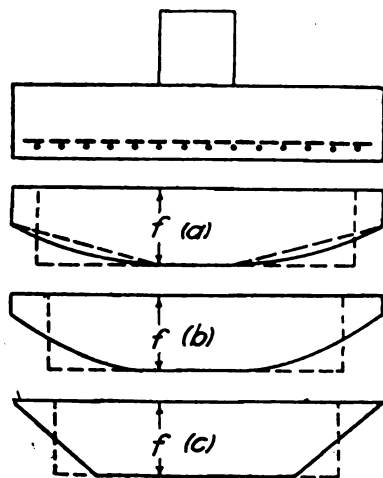


FIG. 9.

up by using the stresses in the several bars. We may obtain this resisting moment in terms of the *maximum* stress f , by finding the equivalent proportion of bars which when stressed to the maximum stress f will give the same total resisting moment as is developed by all the bars with their varying stresses. If the bars are uniformly spaced, this is the same as taking the bars within a rectangle which will give the same area as is included by the curved line. For the dimensions of footing and pier used in the tests, if the minimum stress be $0.25f$ and a curvilinear variation be assumed, then 80 per cent. of the bars stressed to the maximum stress f will produce a resisting moment equivalent to that due to the assumed distribution of stress. If the stress at the edge be $0.50f$ and a curvilinear relation be used, the resisting moment will be equivalent to the use of 87 per cent. of the bars; if a rectilinear relation from the pier to the edge of the footing be used, 80 per cent. of the bars would give the equivalent resisting moment. As an extreme assumption, if the stress at the edge of the footing be $0.75f$ the use of 93 per cent. of the steel will give an equivalent resisting moment. In footings with short thick projections the stress in a bar near the edge will be nearly as great as in a bar under the pier, while in broad thin footings the stress in a bar at the edge of the pier will be considerably less than the maximum.

In connection with this discussion, it seems well to point out that the ordinary assumption of beams superimposed in two directions presumes that outside the pier and out on the projections bars must act to give lateral stiffness, and that these bars have a function as carrying bars to what may be considered the main beam, so that the value of the stress in these outer bars for the purpose in hand must be taken as auxiliary rather than as directly tributary to the

main beams. It is uncertain to what extent this action must be considered in determining resisting moments of the section of the footing. If the distribution of stress across the section were known, it would seem that the stress in all the rods should be used in calculating the resisting moment of the section.

The preceding discussion assumes a uniform spacing of bars. If the bars are spaced more closely toward the middle the same methods may be employed and the probable distribution of stress across the section determined. If provision is to be made for lateral stiffness or carrying stress, a further estimate must be made. If the bars are bunched near the edge of the footings the assumptions would have to be modified.

Another view may be had by assuming two equivalent main beams at right angles across the footing which resist the bending moment already obtained. The width of beam assumed as the equivalent width will be that width for which the calculated stress will agree with the actual stress in the most stressed bar, when only the reinforcing bars within the equivalent width are used in the calculation of resisting moment. It is plain that this width is greater than the width of the pier and less than the full width of the footing. It is evident that the equivalent width will vary with the size of the pier, the thickness of the footing, the dimension of the projecting portion, and the amount and distribution of reinforcement. An expression for the equivalent width of beam for use in calculations, even though empirical and not altogether general, will be useful.

A study of the observations and results of the tests of the footings made in the laboratory indicates that the bars for some distance on either side of the pier have nearly the same stress as those under the pier. As a working basis applicable when the spacing of the bars is uniform or does not vary far from this, the conclusion was reached that the resisting moment of the footing in each of the two directions may be based upon the amount of steel in a width of beam equal to the width of pier plus twice the depth of the footing to the reinforcement, plus one-half the remainder of the width of footing, and that the use of this amount of steel will determine the maximum steel stress. Expressed as a formula the equivalent beam width then is

$$b = a + 2d + \frac{1}{2}(l - a - 2d) \quad \dots \quad (25)$$

where a is one dimension of the square pier, l one dimension the first two terms of the second member is greater than the width of the footing, then the width of the beam may be taken as the full width of the footing.

It may be thought that the concrete along the edges of the footing will of its own strength be sufficient to carry the loads laterally without reinforcement, but the deformation due to flexure along these edges may be much greater than concrete will stand, and reinforcement near the edges serves a useful and necessary purpose, especially in distributing the deformations of the concrete preventing the concentration of elongation at single cracks.

The resisting moment, of course, will be

$$M = A f_j d \quad \dots \quad (13)$$

where A is the area of the reinforcement in the given direction for the equivalent width of beam above specified, f is the unit-stress in the most stressed reinforcing bars, and the other symbols are as given on page 242. If the relative stress in the individual bars across the section is known or assumed, $M = \sum A f_j d$ will express the total resisting moment developed over the section, f here being a variable denoting the unit-stress in the individual bar and A the area of one bar.

The bond stresses may be based upon the shear at the section at the face of the pier. For this the external vertical shear will be the amount of load used in determining the critical bending moment. At the face of the pier this shear is

$$V = \frac{1}{4}(l^2 - a^2)w = (ac + c^2)w \quad \dots \quad (29)$$

The expression for bond stress will be taken to be

$$u = \frac{V}{m a_j d} \quad \dots \quad (17)$$

where m is the number of reinforcing bars included within the equivalent width of beam as used in calculating the maximum tensile stress.

The calculated bond stress is greater at this section than it is towards the end of the bar, and hence the bond stress is considerably greater than the average bond stress found by considering that the total stress in the steel at the given

section is taken off in bond over the surface of the bar between this section and the end of the bar. The same variation of bond stress from middle to end does not hold for the bars near the edge of the footing, and in these the concentration of bond stress is probably considerably greater towards the end of the bar. Where bars are bent up towards their ends the bond stress is also increased in parts of the bar. It is also apparent that the method of calculating bond stress will not apply when the bars are placed in exterior bands without reinforcement under the pier.

In measuring the resistance to diagonal tension failure we may follow the practice used in beams, and for comparison of resistance to diagonal tension we may use the vertical shearing stress developed. Because the diagonal tension failures in footings tested gave fractures at an angle of about 45° with the vertical, the frustum running from the faces of the pier and reaching the reinforcement at a distance d (the depth from surface to centre of reinforcement) from a section through a face of the pier, it seems reasonable to take as the critical section a vertical section enveloping the base of the frustum indicated by EFGH, Fig. 8 (b). This position gives results in agreement with those found for wall footings, and by analogy with the reasoning used in wall footings it may be expected that this is the section which has the distribution of shear giving maximum diagonal tensile stresses. In order to be in agreement with the other formulas for vertical shearing stresses, jd will be used in the formula for shearing stress, thus using the maximum unit-stress of the section instead of the average stress. The external vertical shear V may be considered to be that part of the load on the footing outside of the sections considered. The following formula expresses the amount of the vertical shear by this assumption:—

$$V = [l^2 - (a + 2d)^2] w \quad \dots (30)$$

The expression for the critical vertical shearing stress becomes

$$v = \frac{V}{4(a + 2d)jd} \quad \dots (31)$$

It will be borne in mind that these values of the vertical shearing stress will be used as a measure of the tendency to produce diagonal tension failure. The shearing stress at sections around the pier (punching shear) may be considered

to be that given by the expression $\frac{(l^2 - a^2)w}{4ajl}$, and the working stresses for punching shear applied.

SUBURBAN AND RESIDENTIAL ESTATE DEVELOPMENT.

MANY residential districts in the vicinity of London and other large towns show considerable development during the last few years. A good many have been developed in the right way, on lines calculated to produce the most picturesque results with regard to grouping, vistas, and the nature of the buildings erected, which have usually some controlling standard—such as the Hampstead Garden suburb, Gidea Park, and Letchworth. There is also the direct antithesis of good estate planning and development. Under the latter category—amongst others—might be mentioned that of Beaconsfield. With such considerable extension on the north side of the railway, it forms practically a new development in its entirety. It has, however, been largely spoilt by rigidly adhering to rectangular plots, perfectly straight roads, and equi-distanced building lines from them. Situated mainly on the hill and its slope, the defects of such stiff formality are far more pronounced from many points of view. The majority of the houses themselves are exceedingly good, of the type which most readily fall into line with the picturesque surroundings obtained when associated with properly planned sites for building estates. Not only does the latter form a considerable improvement to the buildings themselves, but the great gain to the locality in general in making it a more attractive and desirable one to prospective residents cannot be over-estimated. In developing a more effective grouping and appearance generally, it has its natural resultant also in the considerable gain from a purely business point of view. With many pieces of charming woodland and their possibilities of far better adaptation in able-controlling hands, the evil of such estates being controlled mainly or solely by large firms of London or provincial surveyors alone is strongly emphasised. Developed to any further extent on similar lines, they are hardly likely to appeal to the

majority seeking large or fairly large residences, who are able to suit themselves with respect of choice. Even a good and well-designed residence, with a bad setting, regarding the general plan and arrangement, does not usually appeal to those who are able to afford it. As a matter of fact, to such, its incongruity is only the more painfully pronounced. Another point regarding such estates, proving the necessity of able general administration, is that of effective control from its architectural standpoint also—in a matter of design. Control which would not admit the introduction of isolated units here and there, evidently with the mistaken idea and endeavour to obtain some "interesting" variations; a class of variation which nevertheless falls considerably below the standard of the general work where it does not return entirely to various forms of jerry-built villas, &c., and those of the most elementary type. In the development of a large building estate to-day there is really no need for the introduction of such anomalies as are produced by the jerry-builder's "creations." They might possibly be given the latter name, but certainly not that of designs. Such creations are evidently the emanations of a diseased imagination or the nightmares of the jerriest of amateur draughtsmen. The latter class of work, introduced by merely a few jarring notes here and there, amongst much that is good, completely spoils a whole locality from a purely first-class residential point of view. There are certainly a good many who would fight shy of continually passing and repassing a nightmare monstrosity, even to arrive ultimately at their own residence which might be perfection from every point of view, or as near such as possible. All things considered, there are several vital points well worthy of more serious consideration by those having building estates laid out to-day, more particularly when there are many natural possibilities in them which can be adapted to artificial requirements, to the latter's gain and advantage in every respect when in the able hands of a master. A building estate, to attain ultimate progressive success, must of a necessity have such effective control, with a minimum for each house and only one on each plot as a safeguard. The architect's brains may possibly be picked on occasions and a few good designs "cribbed" from the many sources which are unfortunately at the disposal of auctioneers, surveyors, and jerry-builders to-day. The lack of the master-mind in general conception, laying out, and all-round effective architecture of a really first-class character, is only too clearly apparent in many instances of development. This point is strongly noticeable not merely to the professional but any educated person of observation. That such localities can really appeal to those for whom they are evidently intended, as prospective residents, is more than doubtful. The resultant ultimatum is more likely to be that of unlet and "unlettable" residences.

RECENT DISCOVERIES OF THE BRITISH SCHOOL IN EGYPT.*

In the previous year a great cemetery of the first dynasty (5500 B.C.) had been partly explored at Tarkhan, about forty miles south of Cairo. This year a valley was cleared and found to contain some 800 more graves closely grouped on each side of an axial road. These were carefully cleared, all the bones measured, the skulls removed whenever possible, plans drawn of each grave and of the whole cemetery, and the form of every vase of stone or of pottery exactly registered. This forms the most complete record yet made of any cemetery. The conquering tribe of the dynastic people had advanced northward from Abydos, subduing the Nile Valley, until Mena founded the new capital of United Egypt at Memphis. Here at Tarkhan was a great settlement, beginning one or two generations before Memphis, and dying away shortly after the new capital was established. What has been uncovered is but a part—probably the smaller part—of the cemetery, which is now mainly under water. Thousands of well-to-do people were buried here within two or three generations, and we must regard this as the pre-Memphite capital of Egypt. This site is therefore the most important centre for studying the critical point of the earliest historical race of Egypt mixing with the pre-historic peoples.

The preservation of the tombs in the cemetery of Tarkhan is remarkable. The earliest stage of the mastaba and tomb chapel can here be seen in perfection. The brick wall which retained the pile of sand above the graves, the little slits in it for the soul to come forth to the offerings, the enclosure for the offerings, and the stacks of pottery brought to the grave

* A report presented by Professor W. M. Flinders Petrie, LL.D., D.C.L., F.R.S., to the British Association.

by the relatives and friends with food and drink for the dead—all were uncovered exactly as they had been left over 7,000 years ago. In the graves were large numbers of alabaster vases, slate palettes, and pottery vases, all of which have been drawn; the types of these, when compared with those of the royal tombs, serve to date the graves to the various reigns shortly before and after Mena. Several blue glazed vases were found, showing that such glazing was commonly in use. As a whole, we get a view of the population, apart from the wealth of the King and Court, and see that they had good furniture, fine vases, and plenty of ornament, and were apparently in quite as civilised a condition as Egyptians of later ages. The physical character and origin of these people are dealt with in a separate paper.

Another site at Gerzeh, a few miles further south, has given good results of the twelfth and eighteenth dynasties. Large cemeteries were cleared and some immense stone tombs with chambers as large as those of pyramids. One large tomb had been attacked anciently; the plunderer had crawled in by a small hole, and had begun to remove the ornaments when the roof fell and crushed him. Thus was saved for our days a gold pectoral inlaid with coloured stones, like the pectorals of the celebrated jewellery of Dahshur, in the Cairo Museum, the only specimen of this splendid work of the twelfth dynasty that has been seen in England. With it was part of a similar jewel of Senusert II. and a gold shell of Senusert III.

At Memphis more statuary and sculptures of the eighteenth and nineteenth dynasties have been found in clearing another acre and a half of the great Temple of Ptah; we further learn that Shishak decorated the temple with a cornice. Gradually the great clearance of this historic site is extended year by year, and it is hoped that the new law, by which the Government claims everything found in private land, will not be exercised to check this work. In the city some workshops have yielded all the various stages of the manufacture of stone vases, from the rough block to the vase spoiled in finishing; other shops contained a great variety of coloured stones brought from the Eastern Desert and from abroad, including the beautiful bright green felspar in granite, not known before. A remarkable standard measure was found, of Ptolemaic age, parallel lines over a foot long being engraved on a slab rather over 2 feet in length. The accuracy of the scale is finer than a hundredth of an inch; the standard is a cubit of 26.8 inches, known in Egypt under the eighteenth dynasty, and used in Asia Minor, classical Germany, and mediæval England.

LICENSED ARCHITECTS IN ILLINOIS, U.S.A.

In the United States it is enacted by the people of the State of Illinois, represented in General Assembly, that only "Licensed Architects" are permitted to practise architecture in the State, and in construing the Act questions have arisen that have also been raised in this country with regard to the position of persons who might engage in the practice of making plans for buildings, either as "designers" or "draughtsmen," without calling themselves "architects," and the Board of Examiners of the State of Illinois have obtained legal opinion on the matter and published the same as Appendix A and Appendix B to their eighth biennial report. These read as follows:—

[APPENDIX A.]

W. H. Stead, Attorney-General,
State of Illinois, Department of Justice.
Springfield, Ill., Dec. 7, 1911.

Hon. Peter B. Wight,
Secretary Board of Examiners of Architects,
1113 Chamber of Commerce, Chicago, Ill.

Dear Sir,—In your favour of the 5th inst., receipt whereof has heretofore been acknowledged by this department, you state that in the city of Chicago a number of persons, who are not licensed to practise the profession of architecture, have been engaged in the practice of making plans for buildings, in which plans they have styled themselves "designers," and have presented such plans to the building commissioner of said city and requested permits for the erection of buildings to be constructed according to said plans.

You desire my opinion as to whether such conduct on the part of the persons so engaged in making plans for buildings, and styling themselves therein as "designers," constitutes a violation of Section 8 of the statute relating to the licensing of architects and regulating the practice of architecture as a

profession, the same being Chapter 10a, Hurd's Revised Statutes, 1909.

In reply to your inquiry, I would say that by said Section 8 inhibition is created both against the practice of architecture without a licence and the advertising without a licence to practise such profession. In the case submitted by you it does not appear that the persons concerning whom you inquire have advertised or held themselves out to the general public as architects, or that they have put out any cards or other devices which might indicate to the public that they are entitled to practise architecture. The question thus becomes whether the action of such persons in preparing and submitting plans for buildings and signing their names thereto as "designers" constitutes a violation of the statute. In other words, does such conduct amount to the practice of architecture?

In reply to this inquiry, I would refer to Section 9 of the above statute, which provides as follows:—

"Any person who shall be engaged in the planning or supervision of the erection, enlargement, or alteration of buildings for others, and to be constructed by other persons than himself, shall be regarded as an architect within the provisions of this Act, and shall be held to comply with the same; but nothing contained in this Act shall prevent draughtsmen, students, clerks of works or superintendents, and other employes of those lawfully practising as architects, under licence as herein provided for, from acting under the instruction, control, or supervision of their employers; or shall prevent the employment of superintendents of buildings paid by the owners from acting if under the control and direction of a licensed architect who has prepared the drawings and specifications for the building. The term building in this Act shall be understood to be a structure consisting of foundations, walls, and roof, with or without the other parts; but nothing contained in this Act shall be construed to prevent any person, mechanic, or builder from making plans and specifications for, or supervising the erection, enlargement, or alteration of, any building that is to be constructed by himself or employes, nor shall a civil engineer be considered as an architect unless he plans, designs, or supervises the erection of buildings, in which case he shall be subject to all the provisions of this Act and be considered as an architect."

From a consideration of this section it appears that if any person actually engages in planning or supervising the erection of a building for others, and to be constructed by other persons, he shall be regarded as practising architecture, and subject to the provisions and inhibitions of the statute. But the Act has no applications to persons engaged in such planning or supervising merely as students, draughtsmen, clerks, or other employes of regularly licensed architects, and acting under the instruction, control, or supervision of such architects, nor does it apply to any person planning buildings to be constructed by himself or his employes.

If therefore the persons to whom you refer and styling themselves in their plans as "designers" are actually engaged in the business of drawing plans for others, and in so doing are not acting under the direction, instruction, or supervision of regularly licensed architects, and if such buildings so planned are not to be constructed by themselves or their employes they must be regarded as practising architecture within the meaning of said Section 9. Not being licensed architects, they would in such cases be liable to the penalties denounced in said section aforesaid.

On the other hand, if such persons act only under the direction, instruction, or control of regularly licensed architects, or plan only such buildings as are to be constructed by themselves or their employes, they do not violate the statute in question.—Very respectfully,

W. H. STEAD, Attorney-General.

[APPENDIX B.]

The Rights of Draughtsmen to Make Plans for Buildings in the State of Illinois Defined.

They have no right to make plans for other than licensed architects, unless such other persons do such a part of the work as to make the plans and specifications essentially and practically their own.

"The State Board of Examiners of Architects, at its meeting held March 8, 1912, received a written opinion from its attorney, Charles E. Pope, defining what rights draughtsmen and office assistants have, under the law, in making plans for buildings, and what rights are forbidden to them. Notice therefore is hereby given to all draughtsmen employed in this State and all licensed architects and other persons employing draughtsmen, that the law will be strictly enforced

against all draughtsmen acting illegally in making plans for buildings.

"In Section 9, Chapter 10a, of Hurd's Revised Statutes of Illinois (the Architects' License Law) it is provided that 'Any person who shall be engaged in the planning or supervision of the erection, enlargement, or alteration of buildings for others, and to be constructed by other persons than himself, shall be regarded as an architect within the provisions of this Act, and shall be held to comply with the same.'

"Another portion of Section 9, of the same chapter, says 'nothing contained in this Act shall be construed to prevent any person, mechanic or builder, from making plans and specifications for or supervising the erection, enlargement, or alteration of any building that is to be constructed by himself or employes.'

"Mr. Pope states in his opinion that it will be seen from this last quotation that in erecting the building, for which 'any person, mechanic, or builder' is allowed to make plans and specifications, such person may have employes to aid him. But there is nothing said in the Act as to whether 'any person, mechanic, or builder' may employ persons to assist him in making plans and specifications for such buildings so to be erected by himself or employes.

"Mr. Pope further says: 'I do not believe that said Section 9 requires that any such "person, mechanic, or builder" must necessarily by himself, and with only his own hands, make plans and specifications for buildings to be constructed by himself; but he must do such a part of the work of making said plans and specifications as to make said plans and specifications essentially and practically his own. He cannot, under this Act, either have his regular draughtsmen, employes, or persons not his regular employes, perform such work on plans and specifications for buildings to be constructed by himself, as to make said plans and specifications essentially and practically their plans and specifications, and not his, and have such employes, whether regular or occasional, necessarily exempt from prosecution under the Act. The pivotal question is as to whether such plans and specifications are essentially the work of such 'person, mechanic, or builder,' or essentially the work of someone else.

"I am of opinion that any such draughtsmen employes, whether regular or only occasional draughtsmen employes of such "person, mechanic, or builder," who are engaged in the making of plans and specifications for buildings to be erected by such "person, mechanic, or builder," and who performs such work on such plans and specifications as to make the plans and specifications essentially their own, must be regarded as practising architecture within the meaning of said Section 9, and are liable to the penalties denounced under the Act for practising architecture without being licensed so to do."

EXCAVATIONS AT WROXETER.*

EXCAVATIONS on the site of the Roman town of Viroconium at Wroxeter, Salop, undertaken by the Society of Antiquaries in conjunction with the Shropshire Archaeological Society, are now in their second season.

The ancient name of the town was Uriconium or Viroconium. The area within the walls amounted to about 170 acres—about one-third larger than Silchester. It is situated some six miles south-east of Shrewsbury.

The site appears to have been inhabited from the earliest days of the Roman conquest. Its first occupation must have been a military one, as tombstones of soldiers of the Fourteenth Legion have been found in the cemetery. This legion left Britain for good in the year A.D. 70. The site, lying as it does on the east side of the Severn, and thus protected from the mountainous district on the west, would have formed an admirable base against the turbulent tribes of Wales, which gave the Romans so much trouble in the first century of our era.

After the cessation of hostilities, the town, situated at the junction of two of the main Roman roads, appears to have grown into one of the largest Romano-British centres. Although there were larger towns in Britain, Wroxeter is the largest which can be almost entirely excavated, as it lies in the open country, without any large modern town built over it.

During 1912 about two acres were excavated near the centre of the town, and revealed four large houses facing

on to a street. This street appeared to be one of the main roads of the town, and a direct continuation of the Watling Street, which entered the town on the north-east. Another Roman road, running from Caerleon in South Wales, and passing through Kenchester and Church Stretton, entered the town on the south-west.

Although all the buildings found differed considerably, yet their general arrangement was similar. They appeared to have been large shops, with dwelling rooms at the back, and wooden or stone verandas or porticoes in front, under which ran a continuous pathway parallel to the street. The buildings had undergone many alterations during the period of the Roman occupation, which lasted for upwards of 350 years. One house showed as many as five distinct constructions, which had been superimposed one on the other. In connection with the houses were five wells, all of them stone-lined, and with an average depth of about 12 feet. One well was complete, with coping stones and stone trough, and appeared as it did when in use in Roman times.

A large number of small objects were found; they included engraved gems from rings, brooches of different metals—one set with stones and others enamelled—portions of two small statuettes of Venus and one of Juno Lucina; also a small pewter statuette of Victory. One of the most interesting was a pewter circular bronze disc with a device, in different coloured enamels, of an eagle holding a fish. Nothing similar to it of the Roman period in Britain appears to have been found before.

Pottery of every description came to light. There were specimens from most of the principal Roman potteries on the Continent, much decorated Samian ware (*Terra sigillata*), and over 300 pieces bearing potters' names. The coins numbered between 200 and 300, and ranged from Claudius to Gratian (A.D. 41 to A.D. 383).

This year a temple has been uncovered. It consisted of a podium measuring 25 feet by 31 feet, the walls of which were formed of large blocks of red sandstone. The space within these walls was packed with stones and clay to form a support for the raised *cella* above. Enclosing walls surrounded the podium, having a space or ambulatory at the back and sides and a spacious courtyard in front. The entrance into the latter was from the main street under a portico of six columns. The whole structure measured 94 feet deep by 55 feet wide.

Many carved architectural fragments, portions of several statues, and the head of a horse were discovered in clearing the site. The top of a well-finished altar was also found, but unfortunately the part bearing the inscription was missing, and there is no evidence to show to whom the temple was dedicated.

Areas to the north and west of the temple buildings are now being excavated. Three hypocausts, several rooms with *opus signinum* floors, and one with a rough mosaic pavement have already been uncovered. One well containing first-century pottery has been cleared out.

The small finds are numerous and interesting, and there is a large amount of pottery. About 120 potters' stamps on Samian ware have already been recorded.

The coins number over 200, and date from the Republican period to Theodosius I.

ADVANTAGES OF SCRAPING AND CLEANING SEWAGE RISING MAINS.

OWING to an injunction which had been obtained against them for the pollution of a stream adjoining their works at Mosspsits, and an attempt by the Earps Trustees for a writ of sequestration, on the ground that the Brownhills Urban District Council had failed to comply with an order of the Court to stop the pollution of the stream, Mr. Robert Green, M.Inst.C.E., of Birmingham, was retained by the Council to advise them upon the necessary works. Amongst other things, Mr. Green recommended that the 5-inch diameter rising main (about 3,300 yards in length) should be cleaned and scraped, with a result that the work was entrusted to the Eric Water Main Scraper Co., of Chepstow, and has just been completed. The main was laid about 1898, and in the course of the scraping, &c., a shunter's pole 1½ inches diameter, with hook attached, and 5 feet 10 inches long, was found across one of the bends in the main, and bore evidences that it had been in the main since it was first laid. After removal of this obstruction and the accumulations on the sides of the pipes, &c., the main was proved to be discharging its calculated quantity per twenty-four hours (over 200,000

* A report presented to the British Association by Mr. J. P. Bushe-Fox.

gallons), whereas at the time Mr. Green advised it to be cleaned it was only discharging at the rate of about 70,000 gallons per twenty-four hours under the same conditions. This is all the more interesting as it is one of the first sewage mains to have been so scraped and cleaned, and proves the necessity of not only properly testing mains before paying for them, but the likelihood of finding the most extraordinary things in old mains. Had the scraping proved unsuccessful a new main would have been necessary, at an estimated cost of about £1,500, whilst the cleaning was effected at a few pounds over £100.

PERSHORE ABBEY.

A MEETING was held on the 6th inst. at the Shire Hall, Worcester (as reported in our issue of last week), to further a scheme for the preservation of Pershore Abbey. Mr. Harold Brakspear, F.S.A., the architect, stated in his report that considerable works were necessary to prevent the collapse of this charming building. The following historical account is taken from the *Birmingham Daily Post* :—

Worcestershire abounds in ecclesiastical antiquities, monuments to the piety of men who builded better than they knew; but the brightest diadem in the crown is surely Pershore Abbey. Its history is coeval with the preaching of the Christian faith in England; its intrinsic beauty is conceded on all hands; and it has architectural features which entitle it to come into the category of cherished national possessions. One can well understand, then, the consternation which has been caused locally by the intimation that the fabric is in so serious a condition that it must be closed for public worship until extensive works of reparation and preservation can be carried out. The restoration scheme had the cordial approval of an influential gathering of county people on Saturday, and it is confidently expected that the £3,000 still required for the work will soon be subscribed.

The date of the foundation of the historic Abbey is about 680, and therefore it is about the earliest of the monastic houses of Worcestershire. The founder is believed to have been Oswald, a nephew of Ethelred I., King of Mercia, and some authorities state it was Oswald's brother, Ostric, who founded at the same time the monastery at Gloucester. After the retirement of Ethelred from the throne to become Abbot of Bardney, a certain duke, named Delfere, seized the possession of the monastery, but according to the monkish chronicles of the time died, eaten up by vermin, whereupon his son Oddo restored and re-established the house which Oswald had instituted for secular or missionary clergy, and vowed perpetual celibacy lest any son of his should be guilty of like sacrilege. Oddo died in 1056, and the Anglo-Saxon chronicle says of him: "He was ordained monk before his end, a good man and pure and very noble." Parts of the inside work of the south transept, which are the earliest now remaining, are attributed to Earl Oddo.

The Abbey was at one time extremely wealthy, and owned in the tenth century 335 manors and other properties. These possessions were, however, much reduced both by the Confessor and by William the Conqueror, who largely endowed the Abbey of Westminster, the church of their coronation, at the expense of the provincial religious houses. Though the monastery was at first instituted as the headquarters of the missionary clergy of the district, it came into the hands of the Benedictines in the latter part of the tenth century through the influence of Archbishop Dunstan. In 1102, the rebuilding of the Abbey was completed after a disastrous fire. The Norman work still to be noted in the transept and crossing of the present Abbey Church is of this date. Mr. F. B. Andrews, the well-known architect, considered that the same school of masons who had just completed their work at Gloucester, and who were in the midst of their labours at Tewkesbury, were employed at Pershore. The choir was rebuilt after a fire which occurred during the first half of the thirteenth century, and is a noble specimen of the earlier Pointed style. Its form, especially towards its east end, is very peculiar, assuming a plan somewhat intermediate between the square-ended choir most usual in England and the apse with radiating chapels so common in France. Another most disastrous fire broke out in 1288. Originating in the bakehouse, it spread rapidly to the adjacent conventual buildings, and at last reached the central tower of the church, where it did much damage. The same conflagration destroyed about forty houses which had sprung up around the monastery. The marks of this

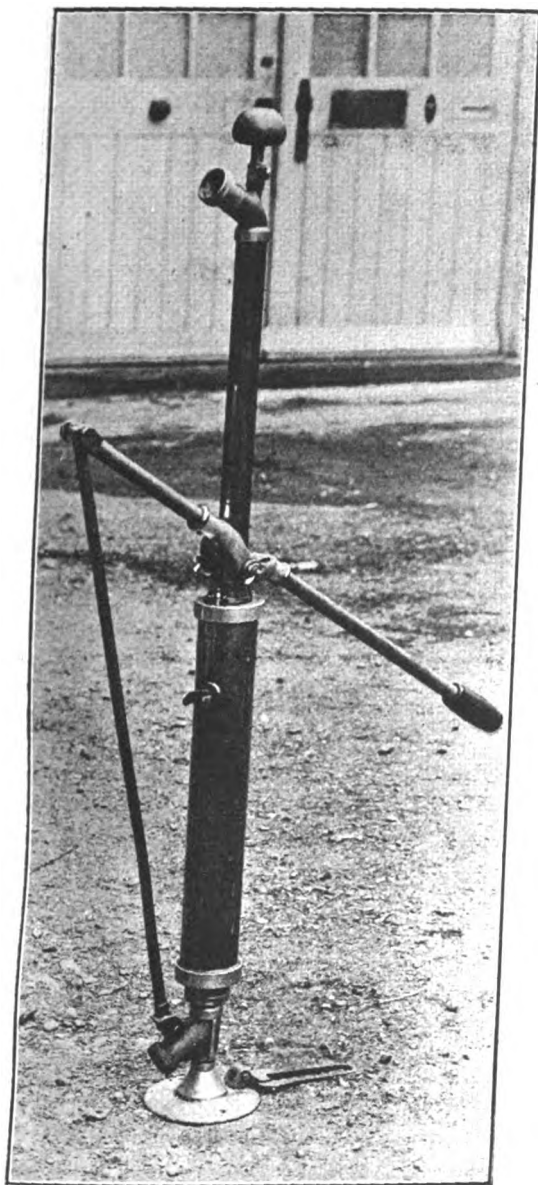
fire, and even some of the repairs incidental upon it, are still plainly visible on the side of the tower piers which face the nave. It is probable that after this fire three special works were undertaken—the higher vaulting of the choir, the erection of a chapel (now destroyed) adjoining the choir and the south transept, and the erection of the two upper storeys of the tower, which together form externally the greatest ornament of the church. A lower storey formed a lantern open to the interior. In the opinion of Mr. Gilbert Scott, R.A., with the single exception of the lantern of Lincoln Cathedral, the lantern of Pershore Abbey is the most beautiful feature of this class to be found in any English church. It was Mr. Scott's belief, too, that the lantern of the tower was the work of the architect who constructed Salisbury Cathedral. This was doubtless the period of the greatest perfection of the church. At the time of the dissolution of the monasteries the Norman nave was pulled down and sold, as were, also, the Lady chapel and other chapels of the monastic buildings. Towards the middle of the seventeenth century the great north transept fell, and buttresses had to be set up for the support of the tower. What now remains is but a fragment of what the church once was, but as a result of the restorations and reparations effected in 1862 it still has a beauty and dignity which help one to understand something of its aforetime grandeur. The central tower, south transept and choir form a noble fragment of what must once have been a glorious architectural pile.

A NEW SUCTION PUMP.

APPLIANCES for raising water have, of course, been in existence since very ancient times. In England we find the earliest use of the word "pump" in a mid-fifteenth century reference to the "pumpe of a schyppe." It may, however, be admitted that with very few exceptions the hand pump of the twentieth century fails to show that marked improvement over its predecessors which might be expected from the revolutionary advance made in other branches of mechanical engineering. Little attempt seems to have been made, for instance, to introduce more effective valves, and so obtain easily a vacuum in the suction pipe communicating with the water to be raised. A lift pump must be very carefully proportioned, constructed and used in order to utilise in water-lifting one-half of the whole power expended on working it.

The latest effort at an improvement is the Zwicky Liquid Pump, which has been more or less tentatively put upon the market within the past few weeks, and of which a most satisfactory private demonstration was recently given at the works of the Zwicky Liquid Pump Co., Ltd., in Stoke Newington. Mr. J. Zwicky set himself out to provide a convenient and portable form of pump which should be capable of being readily erected and operated by hand, and also by motive power. He worked on the principle that reliability is largely dependent upon securing the maximum possible opening of ports with the minimum relative movement between piston and piston-rod, so that both the wear through shock and the friction of the passage of fluid should be reduced as low as possible. The chief feature of the Zwicky patent is its valve. It is not actuated mechanically, but by the pressure and suction of the liquid being dealt with so that its action is both certain and instantaneous. Mr. Cecil Walton, M.I.C.E., in writing a report on the Zwicky pump said that he had no hesitation in saying that it embodied a combination of the highest class valve action known, without any of the common objectionable features. An all-important point is that the pump is "fool-proof," inasmuch as there is practically nothing to get out of order even under the most trying conditions, and its working parts are quickly get-at-able. In the valve, for example, there are no springs or other packing, and the end of the cylinder may be taken off with very little unscrewing. The Zwicky pump combines the best materials with the best finish. It is primarily designed for drawing water, but is applicable also for use with gases. In order that the pump may be compactly folded to secure portability the handle is constructed in two parts; these, however, are not completely detachable and cannot, therefore, be lost. There is a conspicuous absence of loose parts. For stationary pumps a still simpler form of the patent is used, which, while it loses nothing in efficiency, is cheaper. They may be obtained of the smallest or largest capacity, and for use in horizontal, perpendicular, or any other capacity.

The demonstration at which we attended showed beyond all doubt that the pump is extraordinarily effective in action, even when used under trying conditions at a height of over 25 feet from the source of supply. Pumping water has hitherto been a distinctly strenuous exercise; it need be so no longer. The Zwicky pump is only at the beginning



of a successful career for, though scarcely fully fledged, it has already won the admiration of expert and tyro by reason of its compactness, lightness and efficiency. The patent is available for use in many other capacities besides domestic use. Amongst others may be mentioned general contract work, dealing with oil in bulk, ships, pumps, portable filters and tank, and as a small air pump.

ECCLESIASTICAL ARCHITECTURE IN CENTRAL ITALY.

By T. FRANCIS BUMPUS.

Author of "The Cathedrals and Churches of Northern Italy," "The Cathedrals of England and Wales," "London Churches, Ancient and Modern," "The Cathedrals of Northern France," &c.

V.—SOME CHURCHES IN THE NEIGHBOURHOOD OF GENOA: AT PISA, FLORENCE, ORVIETO, AND VITERBO.

On leaving Genoa, and travelling southwards, there is little of architectural interest in the picturesque villages along the coast. Near Rapallo, about eighteen miles from Genoa, there are some extensive ruins of a monastery called Cervara, the seaward view of which is as fine as the architecture is poor. Both here and at Chiavari, ten miles further on, the streets have generally arcades of Pointed arches, resting on columns alternately cylindrical or octagonal, with capitals of a very early style, but which do not appear to be of very

early date, showing the permanence of a form once adopted and approved of.

A little beyond Chiavari the torrent called Fiume di Lavagna falls into the sea. Following the path along its banks, which climbs the hills towards some slate quarries, one sees presently a dark square tower and spire rising among the trees. This is the church of San Salvatore, so interesting as nearly unaltered as a building erected in the middle of the thirteenth century can be, and affords a more instructive lesson as to the original Genoese arrangements than any church of the city does, where numerous sieges have damaged, or wholly destroyed, the campaniles, or successive alterations defaced the original designs. But this church of San Salvatore, built in the first instance by a rich noble family on their estates, and close by the spot whence their title was derived—probably all at one time, for there are no evidences of transition in it—affords the most splendid example of the style of the period; and as the Fieschi fell in the middle of the sixteenth century, before the full tide of the Renaissance art had set in, there are, fortunately, no late additions to mar the general effect.

The material is throughout a black stone, which gives a gloomy effect, particularly in the interior. The west front exactly resembles those of Genoa, having a gable ornamented with the usual chevron above the corbel table, a Pointed door recessed in three orders, a large rose window above, and a small circular window at the end of each aisle. The large window is a beautiful example of a plan common in these churches. It has eighteen Romanesque shafts radiating from a central circle, which carry interlacing round arches. The façade is of black stone for half its height; above of black and white in alternate courses. The tympanum of the door is filled in, and decorated with a fresco of the Crucifixion; at the foot of the cross is Pope Innocent IV., kneeling, and offering his church. Below are three circular medallions: the Virgin and Child, with St. Peter and St. Paul on either hand. Above is an inscription recording the completion of the church in 1252, the text of which is as follows:—

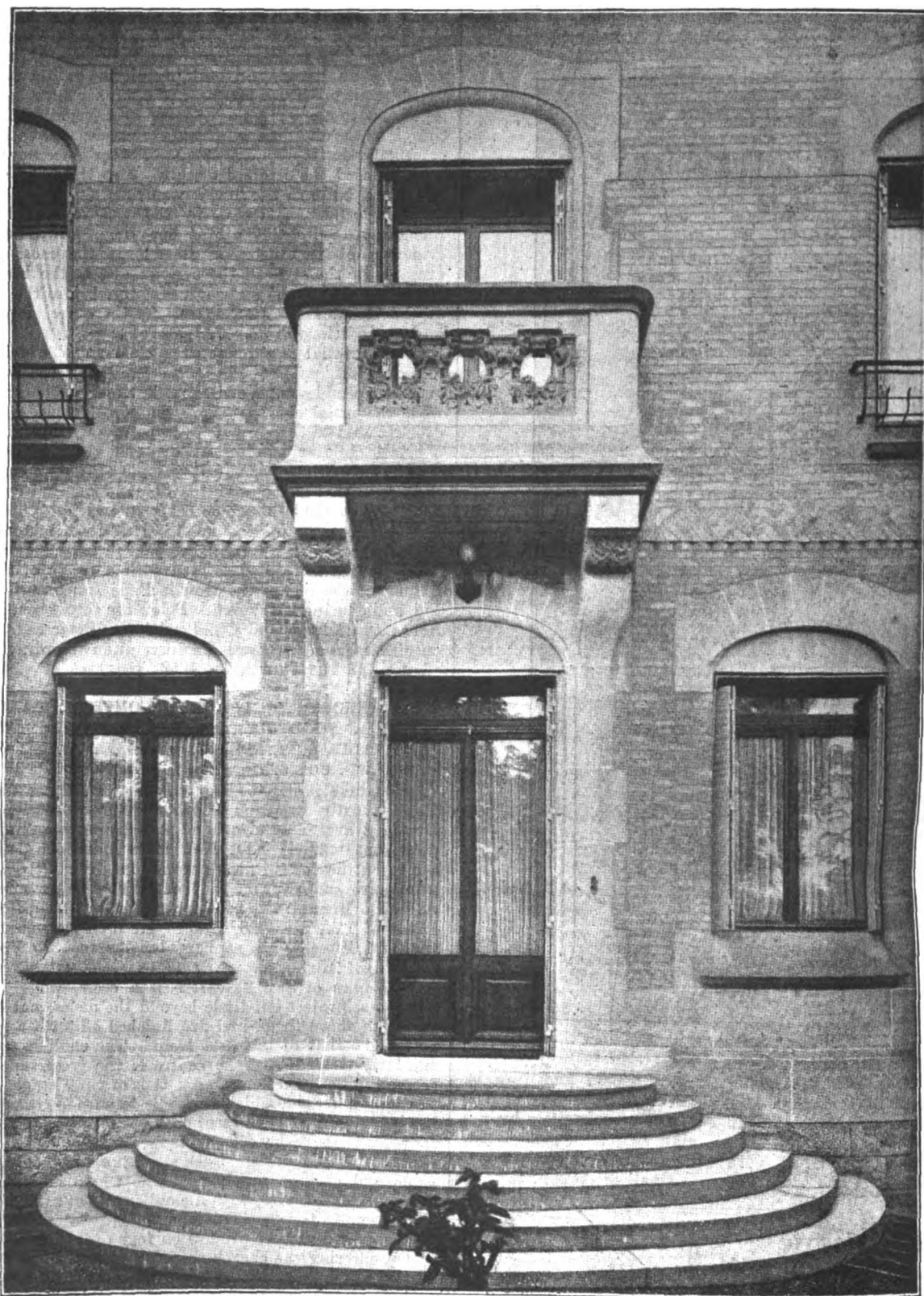
D. INNOCENTI. PP. IIII. COMITUM. LANIE HAC. BASILICA. FUNDAVIT. D. AUT. OCTOBON. NEP. EP. CARDINALIS. S. ADRIAN. OP. OSVAVIT. XII. KL. MAL. I. D. X. M. CC. L. II. ANO. P. SUI. NONO. PERXII. DI. which I take it may be read thus:—"Dominus Innocentius Papa quartus comitum Lavanie hanc basilicam fundavit, Dominus autem Ottobonus nepos cardinalis sancti Adriani opus consummavit XII. Kal. Maii indictione decima 1252 anno pontificatus sui nono permissione divina." The two last words are conjectural, the inscription being much worn. Anibaldo Fieschi was consecrated Pope, under the title of Innocent IV., June 28, 1243. He died December 7, 1254. Ottoboni Fieschi, his nephew, became in 1276 Pope under the title of Adrian V.

The plan of San Salvatore is a cross, whose arms, the transepts, project but little beyond the aisles, but exteriorly rise high above them, and are finished off with a gable, corbelled like that of the west front. The choir is square and similarly treated. In the centre is the great square tower, occupying the entire crossing. It is of three stages, of which the first is considerably the highest, with one large round-headed window on each face; each of the two upper ones has a four-light round-headed window, sub-divided by coupled shafts of white marble. Each stage is terminated by a corbel table and chevron moulding. The whole is capped by an octagonal stone spire, with a smaller one at each angle, as is the custom in Genoa. This one at San Salvatore is further enriched by a dormer window on four of its faces.

On entering the church the nave is seen to be thoroughly basilican in character. It has an arcade of five Pointed arches, of two orders, the second of which is very slightly sunk below the plane of the wall. There are no mouldings or ornaments of any kind. The arches rest on cylindrical columns of great height, with cushion capitals and Classical bases raised on a low dado. The clerestory space nearly equals the height of the columns. It is pierced with three round-headed windows on each side. The roof of the aisles is a wooden lean-to; that of the nave open, with tie beams.*

There are four massive piers to support the tower, which carry Pointed arches spanning the nave and transepts. The vaults of the crossing, transepts and choir are all ribbed.

* The proportions are as follows:—The aisles are about half the width of the nave, and nearly equal to the intercolumnar space, which is 15 feet. Therefore the width of the nave is about 32 feet, and its total length 75 feet. The crossing is a square, of course, and the choir also, so that the total length is nearly 140 feet.

MODERN EUROPEAN ARCHITECTURE.
FRANCE.

ENTRANCE TO A PRIVATE HOUSE, BOULEVARD MONTMORENCY, PARIS.—[From *La Construction Moderne*.—Mons. PLUMET, Architect.]

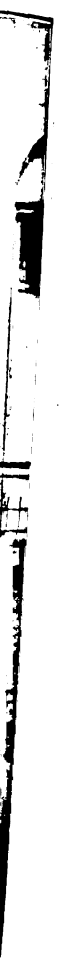
From this description it will appear that the church of San Salvatore, near Chiavari, is an excellent example of the Genoese style, exhibiting a transition from the basilica to the Genoese plan of a crossing with a tower and spire, a plan which, as far as the writer's observation extends, is to be found nowhere else in Italy.

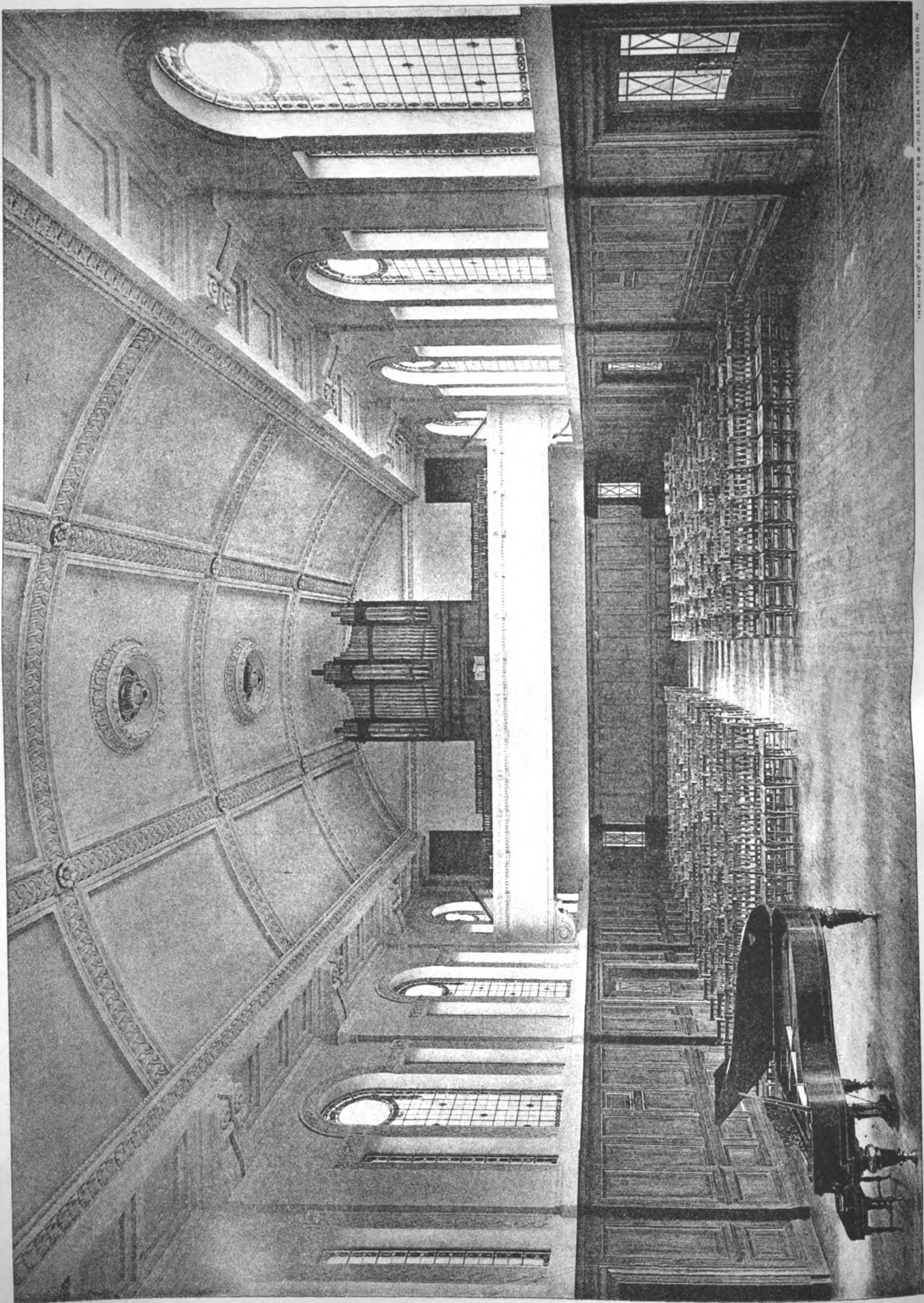
Following the line of the coast southward, we reach Sostri, whence the road strikes inland across the mountains by the Velva Pass. The cliffs are generally too steep to allow of a road along their face, and are rarely broken by bays. Here and there, however, a small town or fishing village has been

built, which, of course, from its secluded position, has suffered little change.

At Levanto, the largest of these places, is another church connected with the Fieschi family. There is the inscription, "D.O.M. Albs. Penellus Lavanie comes Nebien Edps sacravit MCCCCLXIII. XX. MAII."

The west front exactly resembles in material and design that of San Matteo at Genoa. In the tympanum of the doorway is a fresco of the Blessed Virgin crowned. The inside has, unfortunately, been wholly "Italianised," and an aisle added on each side. The original plan may, however,

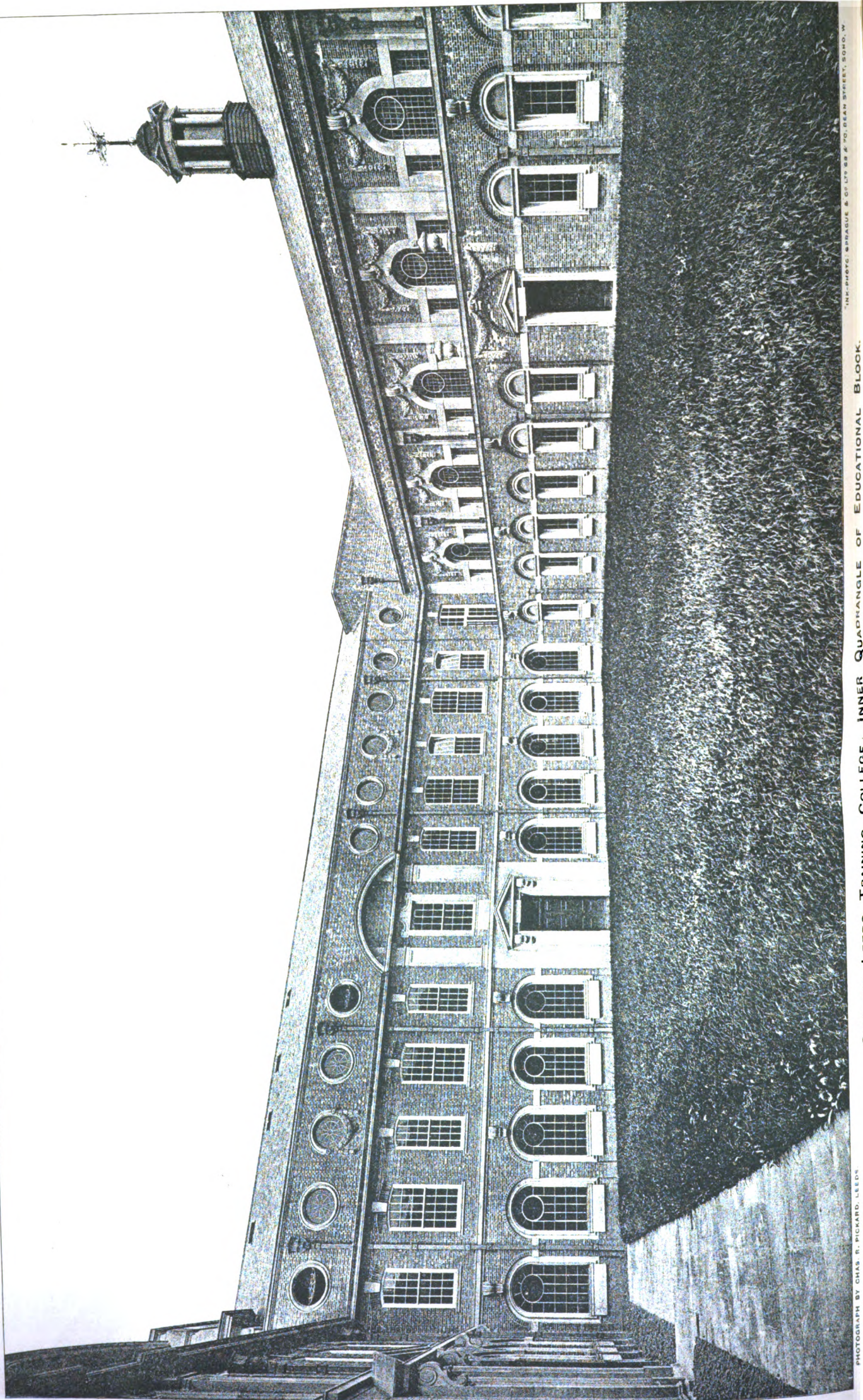




THE PHOTOGRAPH BY CHAR. R. RICHARD, LEEDS.

CITY OF LEEDS TRAINING COLLEGE: EXAMINATION HALL.

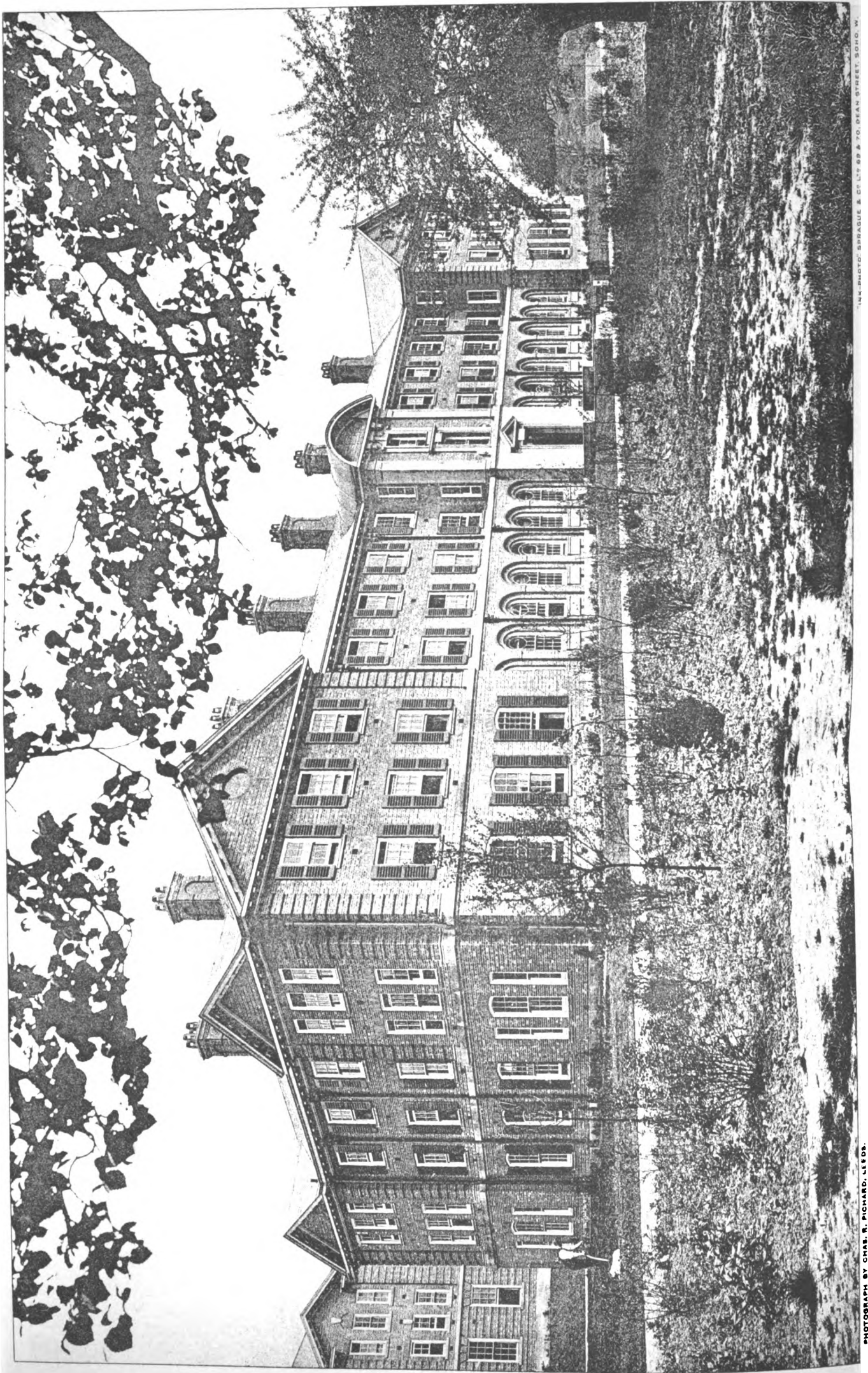
PHOTOGRAPH BY CHAR. R. RICHARD, LEEDS.



PHOTOGRAPH BY CHAS. R. PICKARD, LEEDS.

CITY OF LEEDS TRAINING COLLEGE: INNER QUADRANGLE OF EDUCATIONAL BLOCK.

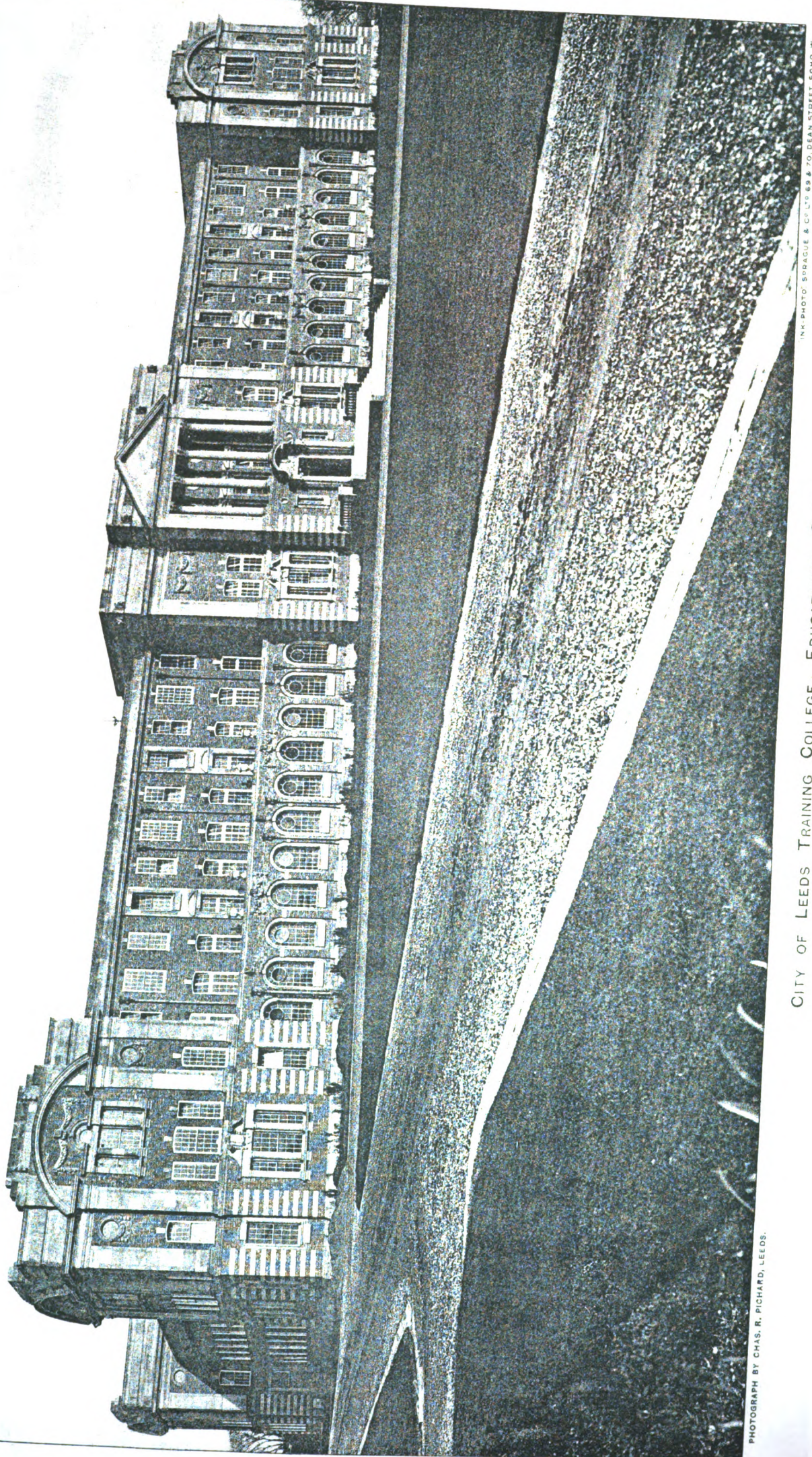
ATKINSON, ARCHT.



PHOTOGRAPH BY CHAS. R. PICHARD, LEEDS.

CITY OF LEEDS TRAINING COLLEGE, BRONYE HALL.
MR. C. W. ATKINSON, ARCHT.

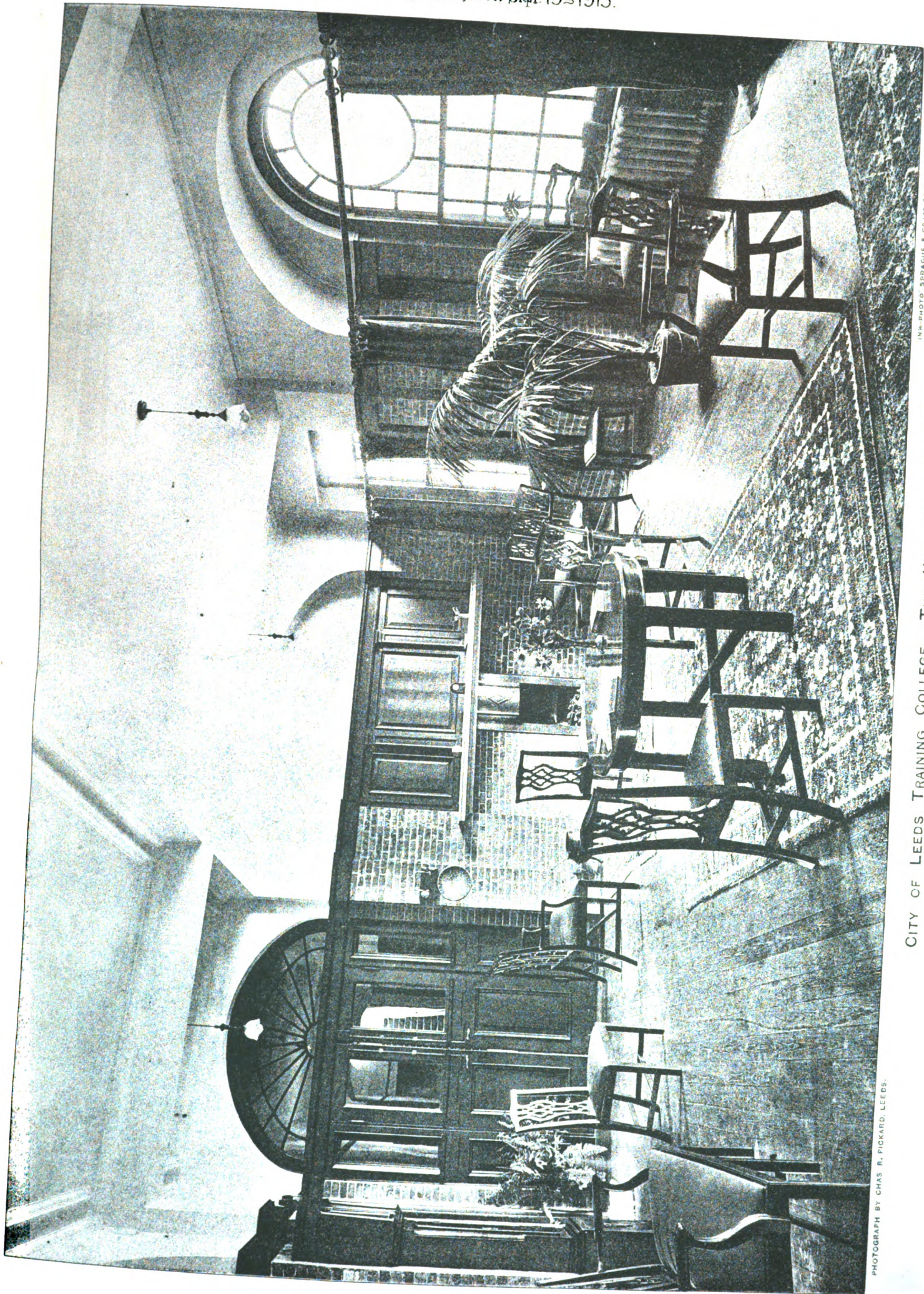
"NEW PHOTO" BRADY & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.



PHOTOGRAPH BY CHAS. R. PICHARD, LEEDS.

CITY OF LEEDS TRAINING COLLEGE EDUCATIONAL BLOCK.
MR. G. W. ATKINSON, Architect.

INK PHOTO. SPRAGUE & CO. 77, 69 & 70, DEAN STREET, SOHO, W.

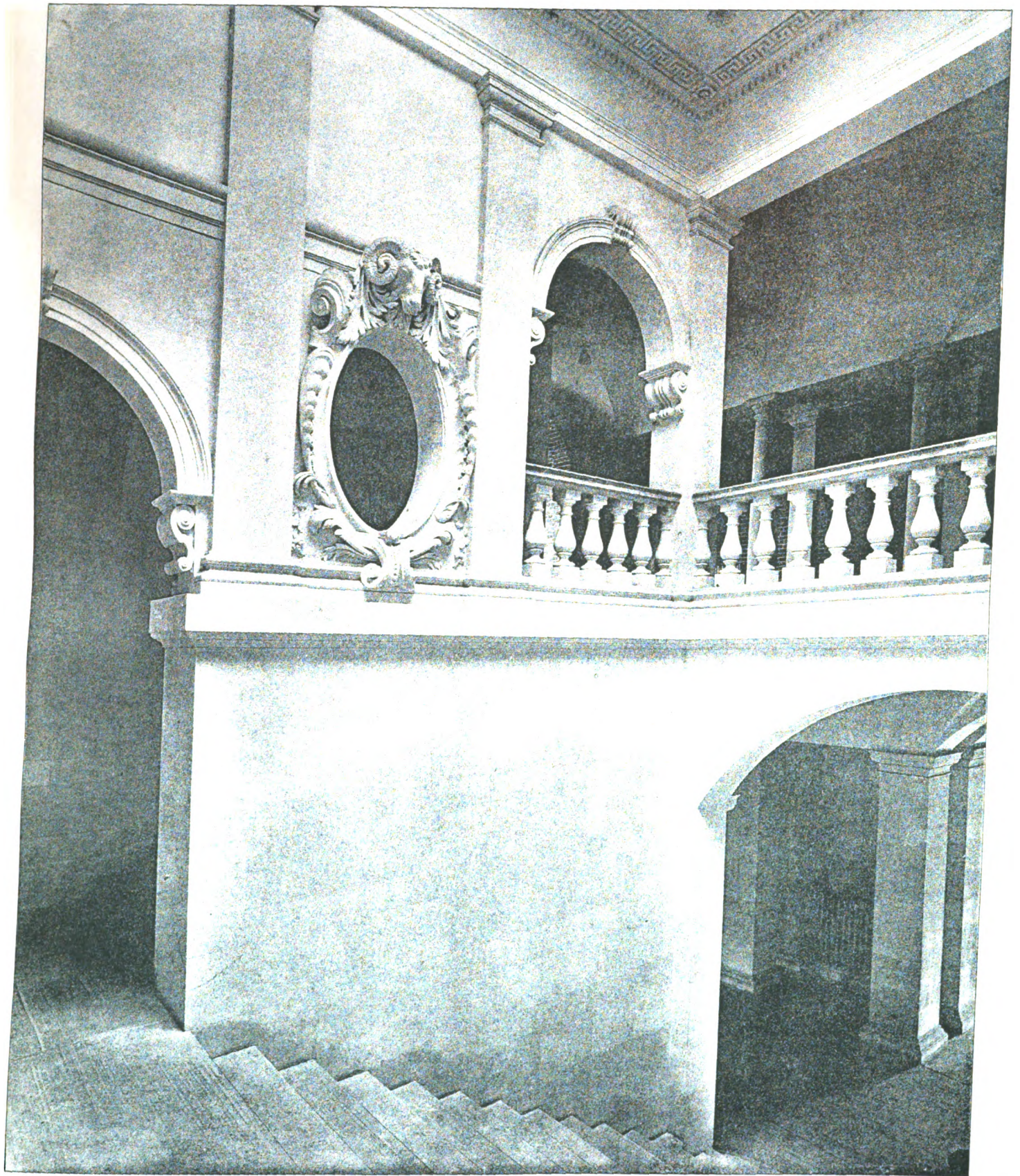


CITY OF LEEDS TRAINING COLLEGE THE HALL, BRONTË HALL.
Mr. G. W. ATKINSON, Architect.

INR-PHOTO SPRAGUE & CO. L^{ts} 89 & 70, DEAN STREET, SOHO, W.

PHOTOGRAPH BY CHAS. R. PICKARD, LEEDS.

The Architect, Sept. 19th 1913.



PHOTOGRAPH BY CHAS. R. PICHARD, LEEDS.

"INK PHOTO" SPRAGUE & CO. LTD. 68 & 70, DEAN STREET, SOHO, W.

CITY OF LEEDS TRAINING COLLEGE: THE STAIRCASE, EDUCATIONAL BLOCK.

Mr. G. W. ATKINSON, Architect.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.

MARKGRAF KARL-FRIEDRICH HOUSE—SHOPS AND RESIDENCES, KARL-FRIEDRICH STRASSE, PFORZHEIM.
Herr THEODOR PRECKEL, Architect.

[From *Deutsche Bauzeitung*.

be traced. There is a wide and long nave of four bays, the intercolumnar space equalling the width; aisles, shallow transepts not extending beyond them, and a choir of one bay. At the crossing the four massive piers for the tower may still be seen; but the campanile now existing is a modern

one on the south side, detached. The church is in short a second edition, so to speak, of San Salvatore.

A few miles further on is the picturesque village of Monterosso, reached by the steepest and in the summer, one would imagine, the hottest of paths along and over the cliffs.

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:
71 Southampton Row, W.C.

Works Tel. No. : 155 Darwen.

London Tel. No. : 2781 Gerrard.

Telegrams { "Anaglypta, London."
"Anaglypta, Darwen."

LINCRUSTA-WALTON. CAMEOID & CORDELOVA

London Show Rooms:
1 Newman Street, W.

London Tel. No. : 3769 Gerrard.

Telegrams : "Lincrusta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, L.

London Tel. No. : 422 East.

Telegrams : "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSSEL
ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

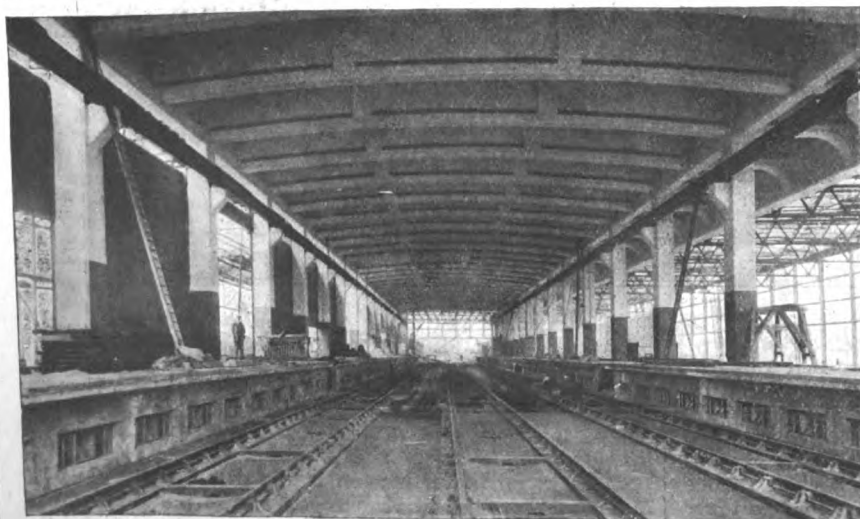
CLARIDGE'S PATENT ASPHALTE CO., Ltd.
21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY—LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all classes of buildings.

They are **FIREPROOF**,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use in all parts of the world.

Arthur L. Gibson & Co.,
Radnor Works,
Strawberry Vale,
TWICKENHAM.

MANCHESTER:
33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:
79 West Regent Street.

The church dates from the first ten years of the fourteenth century. It has a nave of four bays, each about 27 feet wide, the width of the nave. The arches, round and quite plain, rest on cylindrical columns with bases and capitals as at San Salvatore. The aisles are one-third the width of the nave, and have lean-to roofs, and there is a choir of one bay terminating in a semicircular apse. The west front, of the local design and material, is remarkable for one of the most beautiful and elaborate wheel windows in Italy. Indeed, for lightness and elegance, the only works comparable to it are the traceries in the Campo Santo at Pisa and the triforia of Lucca Cathedral. It has eighteen shafts, alternately flat and pointed, radiating from a central circle with a sept-foil in it; these support round arches, which interlace and form pointed ones, trefoiled, and further enriched with mouldings and foliage. The interspaces are filled with various diapers. Between these lights and the outer circle is a band of small arches filled with open diapers. The outer circle has several bands of foliage and boldly cut mouldings of cable form, and finally round its outermost edge a band of acanthus leaves—another instance of the classicities which the Italians cherished in their best times.

An hour's steep climb up the cliffs inland to join the road to Spezzia is necessary to reach the Madonna di Suviore, a votive church, seemingly of the same date as the last, as far as can be judged from the remains of the old work still existing. There is a west façade of the normal Genoese type, but in this case the bell tower is built at the west end of the south aisle, and extends across nearly half of it. It is of two stages, with a two-light window in each, divided by a marble shaft, and crowned with a spire. The circular window of the façade has no tracery, but is recessed in two orders, which are left square-edged and plain, of black and white marble alternately, and round the outer edge a band of acanthus leaves and Classic mutules.

Spezzia is jejune ecclesiologically, but the Church of the Assumption still keeps its Genoese front, divided by pilasters, and having in the central portion a Pointed door and window, and in each of the others a Pointed door with a Pointed window above.

From Spezzia may be visited the small ruined chapel of San Pietro, perched on the northernmost of the two promontories that include the Gulf. Its material throughout is black and white marble, and its plan consisted originally of nave, aisles, and a choir of one bay, with aisles for rather more than half its length. The plan of the piers at the crossing is a parallelogram, with a half-circle applied to its east and west sides to carry the nave arcade and the arch leading from the choir aisle to the choir. The choir roof is groined, a shaft for which is inserted in the angle of the pier.

The capitals are simply a band of foliage with a plain abacus about half its width. The bases, two rolls divided by a hollow, as usual. The bell tower was over the south aisle, of two stages with spire and angle turrets. The windows in general are very narrow, consisting of a slab of white marble, pierced with a trefoiled opening, and deeply splayed with blocks of black and white marble alternately.

This very ancient church of San Paolo a Ripa at Pisa is said to have been an earlier Duomo, to have existed in the eighth century, and to have assumed its present aspect about the middle of the twelfth, when the Countess Beatrice gave it to the Vallombrosian monks. Its plan is very like that of the present Duomo, a Latin cross with an eastern apse. The sea once came to here, and the step and grating to which St. Peter's ship was traditionally moored are still preserved in the centre aisle.

Of all Italian church interiors of its age and class, none is more deeply impressive than that of San Paolo a Ripa.

The nave has six very lofty bays of stilted arches (just Pointed) on cylindrical columns with boldly sculptured capitals in which the Corinthian element predominates. The arches are so perfectly plain that they look as though they had been hewn out of a wall. The column between the fourth and fifth bay on the south side is shorter than the rest, which naturally gives the arch on either side of it a more than usually stilted character.

The small round-headed windows in the clerestory are not placed, as usual, over the arches corresponding with them, but over the voids or spandrels between the arches. The late James Brooks has adopted this plan in one or more of those remarkable churches built from his designs in the north-east of London between thirty and forty years ago. All these windows, as well as the narrow ones lighting the lofty aisles, are filled with white glass in small square quarries.

The roof of the nave is gabled, and of wood, with tie beams, those of the aisles being lean-to, and also of wood.

The last column on either side of the nave is square, with a short capital, and on its western side is the painting of a saint occupying almost half the length of the column from the top. The last arch on either side is much wider than the rest, and is semicircular, as are those opening from the aisles into the transepts. That spanning the western side of the crossing is carried upon corbels, of which the southern one is carved. The other four arches spring from pilaster-like piers. The dome over the crossing is a mere saucer, without any drum, but this, perhaps, only imparts an additional solemnity to the ensemble. Before leaving the nave the fenestration of the west end should be noticed. Here there is but a triplet of round-headed windows of the simplest character filled with stained glass, which is for the most part modern. In the central opening is a standing figure of Our Lord, parts of which are composed of ancient glass very richly and brilliantly tintured, on a blue ground. Figures of St. Peter and St. Paul, both modern, occupy the side lights. The voussoirs of the windows in the aisles and clerestory are in bands of white and grey stone. On the southern wall of the nave are some ancient paintings, discovered after their obliteration during some sixteenth-century improvements. There are only a few benches at the east end of the nave, which is floored with red tiles. At the east end of either nave aisle there is a capital low down in the wall, which looks as if it had carried the much lower arch of an older building.

The transepts are aisleless, very lofty, and very solemn looking. On the eastern side of the southern one are two very small windows pierced high up in the wall, and there is a similar couple with a longer one below it in the opposite wall.

There is no intermediary bay between the crossing and the apse, which is pierced with a Geometrical Decorated window of two lights, and filled with ancient stained glass of pleasing character. The tracery above the two trefoiled lights is in the form of a sex-foiled circle containing The Majesty in stained glass. Our Lord, vested in a blue upper and a dull red under-robe, is an impressive figure.

Each of the two lights contains four medallions enclosing as many half-figures of Apostles, among which may be distinguished those of SS. Peter and Paul, John, Andrew, Bartholomew, Philip, James, and Thomas. At the foot of the left-hand lights are two half-figures under conventional Middle Pointed canopies. The background to all these figures is blue, and the names of the Apostles are inscribed across these grounds. The conch of the apse is very plain, and vaulted in stone of a deep brown colour.

Externally the colours of the façade are brown and white, the former extending to half the height of the attached columns, above which the two colours are pleasantly intermixed.

(To be continued.)

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Amersham.—House, The Lee. Messrs. Kemp & How, F.F.R.I.B.A., architects, 4 Bloomsbury Square, London.
Beaconsfield.—Workmen's dwellings.
High Wycombe.—C. of E. Schools, Marlowe Hill.

CHESHIRE.

Bollington.—Council School, Water Street: alterations (£1,000).

CORNWALL.

Newlyn.—P.M. Church.

DERBYSHIRE.

Ilkeston.—Church, Larklands.
Shardlow.—Workhouse: alterations.

DEVON.

South Molton.—Artisans' dwellings, Bawden's Close.
Tiverton.—Council houses (£3,000).

DORSET.

Poole.—Fish Market: re-building (£750).

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

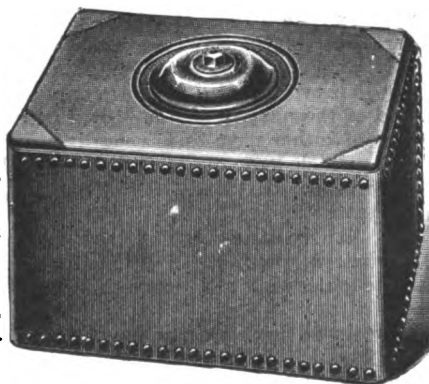
Strong and Durable.

□

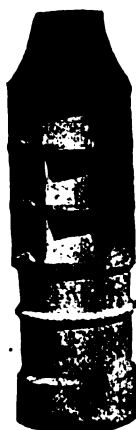
Cheapest and Best
on the market.

□

Can be obtained
from all Builders,
Merchants and Iron-
mongers.



**IRON KEGS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**



In the Summer Time

smoky chimneys are not much
in evidence—but it is the best
time to fix Sankey's Down-
Draught Preventing Pot. This
will stop the trouble when the
cold and windy weather returns.

Have you had our Booklet on
Down-Draught? You will find
it interesting.

J. H. Sankey & Son,

HEAD OFFICE:

Ltd.

EST. 1857.

Essex Wharf, Canning Town, London, E.

A LIST OF ART PLATES pub-
lished in "THE ARCHITECT"
will be forwarded on application to
Gilbert Wood & Co., Ltd., Imperial
Buildings, Ludgate Circus, E.C.

Orr's Zinc White Limited

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.

ZINC SULPHIDE WHITE (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

DURHAM.

Jarrow.—Christ Church Parish Hall.

Murton.—101 workmen's houses. Mr. H. E. Pitt, contractor (£18,900).

Oakenshaw Colliery.—Alterations for Mr. J. Taylor.

Sedgefield.—Workhouse: Infirmary additions and alterations (£1,150).

Stockton-on-Tees.—P.M. Church (for 225 sittings) and schools (for 275 places). £2,000.

ESSEX.

Dunmow, Epping, and Harwich.—Police Stations.

GLOUCESTERSHIRE.

Cheltenham.—Municipal Offices, The Promenade (£9,500).

HAMPSHIRE.

Basingstoke.—Mission Hall, George Street: additions, for the Trustees.

Twenty houses, Deep Lane. Borough Surveyor.

Nos. 5, 7 and 9 Winchester Street: alterations for Messrs. Johnson Bros. and Messrs. Milward & Son, Ltd.

Council School, Brook Street: enlargement.

East Oakley.—Church, St. John's Lane. Mr. E. D. Hoyal, architect, 10 John Street, Adelphi, London. Messrs. Blunden & Oliver, contractors.

HEREFORDSHIRE.

Colwall.—Two houses, corner of Groves End and Mathon Roads, for Mr. J. Armstrong.

HUNTINGDONSHIRE.

St. Ives.—Seventeen (or more) houses, near Oxford Road. Messrs. J. Saint & Sons, Ltd., builders, Crown Street.

KENT.

Dartford.—Public Library (£6,250).

Dover.—St. Mary's Parish Hall: gymnasium. Messrs. Worsfold & Hayward, architects, Market Square.

LANCASHIRE.

Manchester.—Education Office, Deansgate: extension (£5,000).

Firemen's dwellings, Chapel Street.

Platt Bridge.—Council School for 450 places. Mr. H. Wade, architect, 27 Birley Street, Blackpool.

Preston.—Workhouse, Fulwood: Nurses' Home (£4,800).

LEICESTERSHIRE.

Markfield.—Workmen's dwellings.

LINCOLNSHIRE.

Bourne.—Workmen's dwellings.

NORFOLK.

Great Yarmouth.—Council School, Newtown. Borough surveyor.

Palling-on-Sea.—Parish Hall.

NORTHAMPTONSHIRE.

Rushden.—Municipal houses, Rectory Estate. Council surveyor.

NORTHUMBERLAND.

Alnwick.—Two cottage homes, for the Union (£830).

Separate trade contractors.

Amble.—Public Slaughter-houses, Albert House Estate (£2,500).

Berwick.—Picture Hall, Sandgate. Mr. S. H. Lawson, architect, Emerson Chambers, Newcastle-on-Tyne. Messrs. J. Green & Sons, Ltd., contractors, Church Side, Warkworth.

Whitley Bay.—St. Paul's Parish Hall (£2,500).

NOTTINGHAMSHIRE.

Basford.—Workhouse: children's cottage homes.

SHROPSHIRE.

Albrighton.—House, Church Street, for Mr. W. Moore.

Jackfield.—Village Hall (£500).

Shrewsbury.—Postal Sorting Office, Coal Wharf Road: extension.

SOMERSET.

Bridgwater.—Hospital: additions and alterations, &c. (£5,000).

STAFFORDSHIRE.

Bucknall.—Hospital: pavilion for forty beds and extension of administrative block (£6,400).

Stafford.—House, Corporation Street, for Mr. J. Silvester.

"The Hollies," Newport Road: stables to be converted into cottages, for Mr. A. E. Thompson.

Picture Theatre, Bridge Street. Messrs. Campbell & Fairhurst, architects, Stanley Street, Liverpool.

SURREY.

Coulsdon and Purley.—St. Barnabas Church, Higher Drive.

SUSSEX.

Brighton.—Royal Pavilion: alterations (£1,200).

Bognor.—Council School.

Eastbourne.—St. Andrew's Presbyterian Church: enlargement, &c.

Horsham.—The "Station Hotel": alterations and extensions. Messrs. Buckwell & Bullock, architects, 162 and 163 North Street, Brighton.

Worthing.—Nine houses, Wigmore Road. Mr. H. M. Potter, architect, 41a Warwick Street.

St. Andrew's Schools: improvements (£3,000).

WARWICKSHIRE.

Bedworth.—Factory: extensions, for Messrs. G. H. Pickering.

Coventry.—Seven houses, High Road. Messrs. H. Clarke & Son, builders, Coronation Road.

Six houses, Hollis Road, for Messrs. Jervis Bros.

Nuneaton.—Six houses, Earls Road, for Mr. G. Cooper.

Two houses, Lutterworth Road, for Mr. J. Parker.

Two houses, off Lutterworth Road, for Messrs. T. Smith & Sons.

No. 131 Heath End Road: additions for Mr. D. Jackson.

WORCESTERSHIRE.

Worcester.—Garden City houses, Tolladine Road. Mr. Vernon Rowe, architect.

YORKSHIRE.

Askern.—Business premises, for Mr. T. W. Millard. Mr. T. H. Johnson, architect, 20 Priory Place, Doncaster.

Bradford.—Working-class dwellings (£20,000).

Clayton.—Church of St. John the Baptist: additions. Messrs. J. H. & F. Healey, architects, 42 Tyrrel Street, Bradford.

Elland.—House and offices, Westgate. Mr. H. Thompson, architect, Southgate.

Grenoside.—Smallpox hospital: one ward and the administrative block, for the Wortley R.D.C. (£1,500).

Huddersfield.—House, Waingate, Berry Brow. Messrs. J. Berry & Sons, architects, 3 Market Place.

Sheffield.—Congregational Church, Queen Street: improvements (£1,300).

Crippled Children's Institution (Edward VII. Memorial). £31,000.

Thirsk.—Secondary School.

York.—St. Anthony's Hall: extension (£1,200).

WALES.

Abercwmboi.—Workmen's Hall and Institute, for Mr. P. Rees, 4 Bronallt Terrace.

Aberdare.—Ebenezer Hall, Ebenezer Street, Trecynon: additions and alterations, for the Rev. J. G. Jones. Police Station, Market Street, for Glamorganshire C.C.

Cwmaman.—Farmhouse, &c., Fforchaman Farm, for Right Hon. Lord Aberdare.

Eighteen villas, Cwmneol Estate, for the Penybryn Building Club.

Shops, Fforchaman Road: additions and alterations, for the Cwmbach Co-op. Society, Ltd.

Cwmbach.—Two houses, Pit Place, for Mr. J. L. Rosser.

Gorseinon.—Picture Palace: re-building. Mr. T. F. Jenkins, architect.

Llandudno.—Premises, Mostyn Street, for Nat. Prov. Bank.

Llwydcoed.—Eight houses, for Mr. J. W. Lewis (Clevedon).

Pontlloftyn.—The "Cosy Cinema": alterations, &c.

Rhosneigr.—Congregational Church.

Swansea.—Wagon Works, for Messrs. Hurst, Nelson & Co., Ltd. (Motherwell). Messrs. Cook & Edwards, architects, Masonic Buildings.

SCOTLAND.

Clydebank.—Masonic Temple, Brandon Place, for Lodge Barns o' Clyde, No. 1018.

Coatbridge.—Shops with houses over, English Square, for Mr. W. Martin.

Y.M.C.A. Institute (£4,000).

Duffus.—School, Rothills, for the School Board.

Dumfries.—Refuse destructor (£4,000).

Dundee.—School, Balgray Road, for the School Board.

Glasgow.—Royal Infirmary: medical block, &c.

Twenty-four houses, King's Park Avenue. Mr. M. Dickie, builder.

Goods Offices, Dumbarton Road, Whiteinch, for N.B.R. Co.

Buildings, Garngadhill, for the Tharsis Sulphur and Copper Co., Ltd.

Country Houses, Bungalows, and Week-end Cottages.

DESIGNS, PLANS, AND
APPROXIMATE COST,
WITH PARTICULARS BY
PROMINENT ARCHITECTS.

Send Postal Order or Stamps for 4/6, and the
11 issues, October 27, November 24, January 26,
February 23, March 29, April 26, May 31,
June 28, July 26, September 27, and October 25,
will be forwarded per return.

LONDON:
P. A. GILBERT WOOD, Publisher,
6-11 Imperial Buildings, Ludgate Circus.

ABERTHAW AND RHOOSE PORTLAND CEMENT & LIME CO., LTD.

MANUFACTURERS OF

BEST BRITISH PORTLAND CEMENT

BY THE LATEST AND MOST
MODERN METHODS AND MACHINERY.

Guaranteed uniform in quality and to pass British Standard
specification, or any required specification.
Special facilities for shipment at the Port of Barry Docks.
Excellent situation for home consumption.
Consumers are invited to apply for samples, analyses, and
quotations to—

54 ST. MARY STREET,
CARDIFF.

Telegrams: "SILICA, CARDIFF."
Telephone: 1367 CARDIFF.

WILLESDEN UNDERLINING PAPER

For all Climates.

Water-proof. Rot-proof.
Insect-proof.

FOR UNDERLINING SLATES, TILES, IRON BUILDINGS, WITH OR WITHOUT
BOARDS, FOR LAYING ON JOISTS. PLACED UNDER FLOOR BOARDS
EXCLUDES DAMP AND DEADENS SOUND. A'SO FOR DAMP WALLS.

WILLESDEN PAPER AND CANVAS WORKS, LTD., WILLESDEN JUNCTION, LONDON, N.W.
Telephone No.: 1165 Willesden. ESTABLISHED 1870. Telegrams: "Impermeable, London."

A LIST OF ART PLATES published in "The Architect"
will be forwarded on application to Gilbert Wood
& Co., Ltd., Imperial Buildings, Ludgate Circus, E.C.

JAMES D. ROOTS & CO.,

THANET HOUSE, TEMPLE BAR, LONDON, W.C.

British, Foreign, and Colonial

PATENTS

Designs and Trade Marks.

Moderate charges. Advice to Inventors free. Provision of applica-
tion, 25 3s., protects in Great Britain and all foreign countries which
are members of the International Convention. Opinions and Reports
on Patents. Expert evidence on Patent and Engineering Matters
in the Courts. Oppositions Conducted. Contributors of the Patent
Abstracts to "The Times," "The Architect," "The Automotor,"
and for years formerly to "The Engineer." Send postcard for
Patents Guide and Abridgment of Patents and Designs Act, 1907.

Telegraphic Address—"Oaktree, London." Telephone No.—12227 Central.

SCOTLAND—continued.

Glasgow—continued.

Building, Govan Road, Linthouse, for Messrs. Alex. Stephen & Sons, Ltd.

Greenock.—Ladyburn School, for 860 places (£11,550).

Irvine.—Tenement of houses, Boyle Street, for Messrs. Mackie & Thompson, Ltd.

Troon.—Presbytery, Cessnock Road (£1,000), for the Bishop of Galloway.

IRELAND.

Blackrock (Co. Dublin).—Picture Theatre. Mr. F. Hayes, M.R.I.A.I., architect, 24 Nassau Street, Dublin.

Lurgan.—Labourers' cottages. Mr. J. W. Walby, C.E., architect.

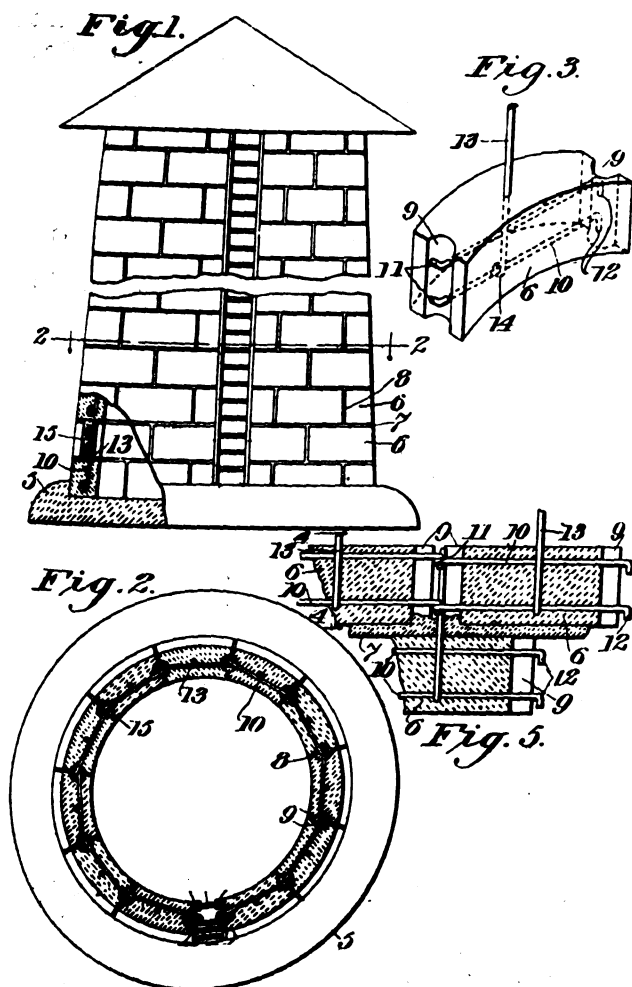
Newry.—Laundry, St. Clare's Convent, High Street. Store, Cornmarket, for Mr. J. Quinn.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 9964. April 28, 1913. Dated under International Convention May 3, 1912. Reinforced Blockwork Structures. G. C. Harvey, 7 Park Street, Geneva, Ashtabula, Ohio, U.S.A. This invention relates to concrete structures formed of metal-reinforced blocks, the metal reinforces being so constructed and arranged that they may readily be interlocked when laid to form a typing or bonding engagement between each block of a course of blocks. Every block has embedded in it a combination of longitudinal reinforcing rods and a substantially central vertical rod. Fig. 1 is an elevation partly broken away transversely and vertically, and showing the invention embodied in a silo. Fig. 2 is a transverse horizontal section taken in the plane of line 2-2 fig. 1. Fig. 3 is a perspective view of a block. Fig. 5 is a vertical section illustrating parts of two course of blocks. A suit-



able concrete or other foundations 5 may be prepared, upon which the superstructure is erected, course by course, and the several courses comprising blocks 6. The blocks in successive courses are laid to break joints. Any suitable mortar or cement may be used between the courses as at 7, and the vertical joints of the constituent blocks may also be made

of mortar or cement 8. The several blocks 6 may be substantially alike in construction, and they will be of approximate shape or size for the structure to be erected. Each block is segmental, and its ends are provided with vertical grooves 9. Moulded in are the longitudinally reinforcing rods 10 of metal, these rods extending outwardly into the grooves and bent transversely and vertically at their opposite ends, as indicated respectively at 11 and 12 to form complementary interlocking hooks, so that when two blocks are arranged end for end their rod ends or hooks 11 and 12 will interlock, and thus serve to tie the blocks together. At about the longitudinal centre of each block is a vertically disposed rod 13 embedded in the block, and connected with the longitudinal rod or rods by bending its end 14 around the lowermost rod 10. This vertical rod intersects the hooked ends 11 and 12 of adjacent blocks in the course of blocks next above where the joints break, thus not only serving to retain these ends 11 and 12 in an interlocked state, but also to prevent the blocks from getting out of alignment transversely as well as longitudinally. The spaces between the grooved ends of the blocks occupied by the hooked ends 11 and 12 of the longitudinal rods and the projecting ends 13 of the vertical rods may also be filled with mortar or cement as indicated at 15, figs. 1 and 2. Aug 13, 1913.

PATENT SPECIFICATIONS PUBLISHED
SEPTEMBER 11, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

No. 15,030. Nov. 14, 1912.—Clara Tibbits, Old Vicarage House, Walsall. Firegrates, ranges, and other domestic fireplaces.

18,976. Aug. 19, 1912.—Walkden Draper, 16 Clive Street, Burnley, Lancs. Locking device for stopping hoists.

19,074. Aug. 20, 1912.—Constantin Predragovic, Zombor, near Szedin, and Josef Speiser, brick manufacturer, Apatin, Hungary. Building bricks or blocks.

19,262. Aug. 22, 1912.—A. E. Merkel, Century Building, Cleveland, Ohio. Sanitary systems for mausoleums.

19,358. Aug. 23, 1912.—Adalbert Hermann, 107 Liechtensteinstr., Vienna. Process of moulding or forming plastic materials into artificial stone.

19,596. Aug. 27, 1912.—W. G. Wakeham, 13 Woodland Terrace, Greenbank, Plymouth. Wood panelled partitions particularly for ships' cabins, corridors, alleyways, and the like.

19,880. Aug. 31, 1912.—Wellings & Co., Ltd., and W. H. Wellings, Stanley Works, Wilson Street, Wellington, New Zealand. Spout or gutter brackets.

23,319. Oct. 12, 1912.—William Brymer, and Workman, Clark & Co., Ltd., Belfast Shipyard, Belfast. Device for 6,916. March 20, 1913.—Eugen Tiedemann, Gustav Adolphstr 1, Leipzig. Means for balancing the weight of windows and the like.

4,598. Feb. 22, 1913.—J. P. J. Colette, 14 Park Road, Forest Hill, S.E., and A. A. Simmons, Bloomsbury House Club, Cartwright Gardens, Tavistock Square, W.C. Lock for doors and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Decay of Brick Walls.

SIR,—The recent fall of houses in Dublin, when seven people were killed and twenty-three were injured, causes me to refer to the article under my name which appeared in your issue of September 12—namely, "The Disintegration of Brick Walls." This article was written a few weeks before the disaster, and I believe that it will be found to bear on the unfortunate occurrence. I have been amazed, during my tests, to find how rotten a brick has become owing to the initial dislodgment of surface particles. Interior portions of a brick are dissolved out minutely, thus allowing the insoluble siliceous grains to crumble, the whole brick then losing its strength. A piece of old brick broken from a wall and deposited in water will yield a rich horde of microscopic life, both animal and vegetable.—Yours faithfully,

JAMES SCOTT.

September 13, 1913.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sup.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzon, London." Telephone: Regent 2043.

N.B.—All above fitted with the best solid Tyres.
i.e., Wood-Milne Steelrubber—other makes to order.

GOLD MEDAL

"Bell" Grates

are in use at

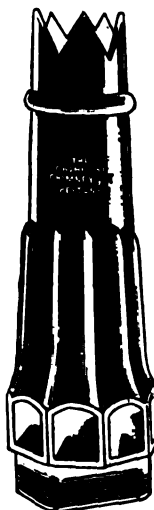
The Mill House, Dersingham.
Rusley Park.
Inveraray Castle.
Ludlow Castle.
Rushton Hall.
Nevill Holt.
Belton Hall.
Redworth Hall.
Whittington Old Hall.
Fyvie Castle,
etc., etc.



**GOLD MEDAL
"Bell" Grates**

are in use at
Royal Liver Building, Liverpool.
Junior United Service Club.
Royal Southern Yacht Club.
Union Club, Birmingham.
Liberal Club, Glasgow.
United Service Club, Lucknow.
Grand Hotel, London.
Cameron Hotel, Swansea.
Albany Hotel, Hastings.
Savoy Hotel, London.
Sandhurst College.
King Edward Grammar Schools,
etc., etc.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.



The principal feature of the **CHAMPION CHIMNEY POT** is its magnificent updraft.

For many years the "Champion" has been specified by **LEADING ARCHITECTS** and has sold in large numbers.

Architects speak highly of its **SMOKE-CURING** and **VENTILATION** qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to **The Patent Chimney Pot Co., Ltd., 105 Albion St., LEEDS.**

— THE — Universal Concrete & Construction Co. Ltd.

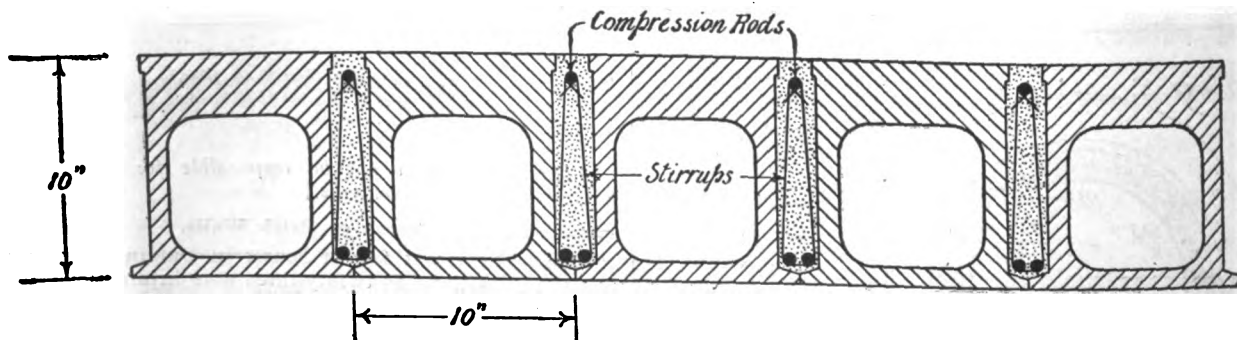
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without **Beams** projecting below the **Ceilings**, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
Architecture in the West Country	277
Notes and Comments	278
Competition News	279
Illustrations :—	
Cardiff Coal and Shipping Exchange	279
Coalbrookdale Vicarage, Shropshire	280
Grendon Almshouse Infirmary, Exeter	280
Sketches in the West Country	280
Metals for Structures	281
The Stock Exchange of Ancient Rome (illustrated)	284
Lake Villages in the Neighbourhood of Glastonbury	285
Big Belgian Churches (with plan)	286
London Master Builders' Association	288
University of London Extension	289
Beaux-Arts Atelier	289

	PAGE
Notes on Books	289
Ecclesiastical Architecture in Central Italy	290
Building Progress in the Provinces	295
British Patent Specifications	297
Correspondence	299

FORTHCOMING EVENTS.

Tuesday, September 30.

Royal Society of Antiquaries of Ireland: Quarterly General Meeting at Dublin, at 8.30 p.m.

Wednesday, October 1.

National Gas Congress and Exhibition opens at International Exhibition Halls, Shepherd's Bush, W., at 12 noon. (October 1—November 1.)

Institute of Sanitary Engineers: Opening Sessional Meeting at Caxton Hall, S.W., at 8 p.m.

ARCHITECTURE IN THE WEST COUNTRY.

THERE is something peculiarly attractive about the architecture of the West Country that makes it one of the most favoured sketching grounds for students both in their early and their mature years. It is difficult to exactly explain wherein this particular charm lies; perhaps a great portion of it is due to the fact that the West Country is pre-eminently a stone country. It has, therefore, for the most part, escaped the loss of old examples which particularly afflict a district in which wood has been the main building material of the past. There has also been the favourable circumstance that owing to the comparative lack of industrial activity in the coal age, the West Country has preserved the remains of its flourishing manufacturing period untainted by smoke and saved from the destruction that has accompanied later-day prosperity in other parts of the kingdom. In this respect there is a considerable resemblance between the circumstances of the West Country and of East Anglia. Both were remarkably wealthy districts of England until the coalfields of the North and the Midlands removed from them the greater part of the nation's activity in manufacture and in commerce. The student of fourteenth and fifteenth-century English architecture has his choice to make between the West Country and East Anglia, for in these two districts are to be found the great majority of examples of the best architecture of the fifteenth century, and each is pre-eminent in one particular—the towers of Somersetshire are, as a class, nowhere else to be equalled within a corresponding area, whilst East Anglia can claim pre-eminence in a similar manner for the extent and quality of its colour decoration.

Although one may perhaps particularise the fifteenth century as being the culminating epoch of the West Country's production in architecture, it must not be assumed that therefore this district is deficient in excellent records of other epochs. Stonehenge, Westbury White Horse, and the lake dwellings of Meare are evidences of prehistoric and legendary periods of social importance, whilst the cathedral of Truro bears witness to continued activity of the West Country in the production of architectural masterpieces down to our own time.

Some of the most interesting of the pre-Conquest Christian architecture of England is to be found in the West Country, as at Deerhurst and in the instructive little church of Bradford-on-Avon, which throws so much light on many otherwise difficult features in English mediæval church planning. The cathedrals also in this district number amongst them such impor-

tant examples of thirteenth-century work as Salisbury and Wells, which with Exeter form a remarkable group of examples of iconographic west fronts. In Gloucester we have a type of Norman nave treatment which, as at Tewkesbury, may be said to be particularly of West-Country character and entirely different from that more strongly influenced by French fashion as seen on the eastern side of England.

Nor are the monastic establishments other than cathedrals any less notable or worthy of particular study, as, for example, those of Bath, Glastonbury, Lacock, and Malmesbury. Bath Abbey enjoys the distinction of having been a cathedral church from the date 1091, when Bishop John became first Bishop of Bath, and the city continued its supremacy until the middle of the thirteenth century, when the Canons of Wells were admitted to joint authority and the diocese became that of Bath and Wells. The hierarchical importance of Bath declined until in 1544, in the reign of Henry VIII., it was enacted that: "All gifts, grants, and writings to be made by the Bishop of Bath and Wells under his seal, of any his lands, offices, fees, &c., and confirmed by the dean and chapter of Wells in writing under their chapter seal, shall be good in law to bind the successors of the said bishop; and the dean and chapter of Wells shall be for ever the entire and sole chapter of the said bishoprick of Bath and Wells, whereof the prior and convent of the dissolved monastery of Saints Peter and Paul of Bath were heretofore the half part."

Glastonbury is of importance not only from the high position held by its abbot during the early mediæval period, but architecturally is of supreme interest as one of the few examples remaining in England of the mediæval kitchen to a large house.

It is interesting to note that the prevalence of excellent Perpendicular work throughout the West Country followed the first introduction of that particular phase of architectural design at Edington Church, but one can scarcely regard this as a cause rather than the exceeding prosperity of the West Country during the fifteenth century. Amongst the legacies left to us of fifteenth and sixteenth century architecture of the West Country, there is scarcely any feature more enthralling than the woodwork of the church interiors, remarkable in particular for the richness and variety, as well as for the boldness in execution of the carving.

The churches of Devon and Somerset are still full of magnificent examples of the wood-carver's craft. In their monumental work on "Rood Screens and Rood Lofts," Mr. F. Bligh Bond and Dom Bede Camm give a list of over 140 rood screens and chancel screens in

Devon, which they classify into the following types: (1) early screens, flat-headed with rectangular compartments, chiefly of the fourteenth century; (2) the ordinary Perpendicular type, which is found with minor variations, all over Devonshire; (3) the enriched Perpendicular type, which presents a marked superiority of detail, as at Kenton; (4) the Hartland-Burrington type, in which the lights are divided by a heavy moulded standard running into the apex of the arch, the vaulting spandrels being richly embossed and the cornices very fine; (5) the "Exe Valley" type of Perpendicular, of which the screens at Kentisbere and Bradninch are instances. The "tilting shield" is the characteristic ornament here; (6) the Halberton-Uffculme variety, a very early and massive type of Perpendicular, comparatively plain; (7) the Dartmouth type, which has a distinctive character of tracery, containing foliated canopies within the arcaded window heads. The vaulting has also a special character; (8) the Bridford type, which is a highly enriched variety of late Perpendicular, with a slight admixture of Renaissance feeling; (9) the Lapford type of screen, which has a tracery system of Perpendicular character, with cornices chiefly of native design, but in which the fillings of the vaultings and other members exhibit a strong Renaissance admixture. Screens of this type are found at Atherington and Marwood; (10) the Holbeton type of Hispano-Flemish screenwork, of which several of the parclose screens in South Devon are representative; (11) the Colebrook type of screen, which exhibits detail of a nature partly French and partly Moorish; (12) the Pilton type, which has affinity with the early vaulted screens at Halberton and Uffculme, but is much richer and exhibits a number of florid decorated forms.

In Somerset there are recorded by the same authors more than 150 examples of screen-work, including some Post-Reformation examples, for the churches of Devon and Somerset still continued after the Reformation to be adorned with excellent carved woodwork. This wealth of screen-work is accompanied also by a corresponding abundance of other carved fittings, such as pulpits, bench ends, stalls, &c.

We stated earlier that East Anglia is notable for its colour decoration, but in so doing, we do not forget that Devon and Somerset also contain many examples of painted figure-work on their screens. The quality, however, of the East Anglian work is, to our mind, superior to that of West Country painting.

Not only in its ecclesiastical architecture is the West Country notable and desirable as a sketching ground. The manor houses of the fifteenth and sixteenth centuries in particular are strikingly charming and attractive, and the district possesses its fair share of great houses of the seventeenth and eighteenth centuries.

NOTES AND COMMENTS.

THE systematic investigation of soot-fall within their respective administrative areas is to be commenced on October 1 by the health authorities of several of the London boroughs, and of Birmingham, Bradford, Crewe, Exeter, Glasgow, Hull, Leeds, Leicester, Malvern, Newcastle, Plymouth, and York, and the Hamburg Verein für Raubbekämpfung. Investigation of soot-fall we may regard as an introductory step in the education of the general public and their governing authorities as to the necessity for the reduction of the injury done to health and property by smoke-polluted air, thus forwarding a general movement for Smoke Abatement. The undoubted injury to health is only a general proposition, but the statement that the soot-and-dust-fall of the metropolitan area ranges from 650 tons per square mile in the centre of the City to 195 tons at Sutton in Surrey, and that over the whole district of 117 square miles 51,597 tons of solid matter was precipitated in the one year ending June 30, 1911, are figures which impress, even if they do not afford much scientific information.

The comedy of the Dublin art gallery has been brought to a close by the adoption of an amending resolution at a special meeting of the Dublin Corporation on Friday last "That this Council, while very grateful to Sir Hugh Lane for his generous gift of pictures to the city and Corporation of Dublin, is strongly of opinion that the Bridge site for the purpose of erecting an Art Gallery to contain them is not the most suitable, it being expensive, unpopular, and impracticable, and hereby requests Sir Hugh Lane not to insist on the Bridge site, and to leave the selection of a site and the inviting of designs for a building to the discretion of the Council."

Whilst we are all desirous of seeing both sides of the Thames made part of a beautiful London, it must not be forgotten that the wealth and prosperity of London depend in no small degree upon the useful, if ugly, aspect of the southern side of the river, and therefore we cannot but approve a suggestion made by a correspondent in the *Morning Post* that for the utilitarian purposes of wharfage a canal should be made south of the river. The actual suggestion is that this canal for purely commercial purposes should be formed parallel to the river between Westminster and Blackfriars Bridge. The exact course of the canal is, we think, open to question, and would, in our opinion, be better if not parallel to the river. The correspondent, like most amateur town-planners who offer suggestions in the public Press, is honest enough to admit that it would be for the experts to say how such a scheme would work out financially. As we have before noted, the financial aspect of town-planning schemes is vital. Anyone can make suggestions whose cost renders them impracticable.

Amongst the beautiful objects which, it is to be presumed, may some day adorn the southern bank of the Thames, is the proposed Shakespeare Memorial Theatre, but there will be plenty of time, we imagine, for the canal to which we have alluded to be planned and completed before the funds are sufficient for the erection of the theatre.

We are pleased to learn that the hanging committee of the Royal Glasgow Institute of the Fine Arts has adopted the policy to which we referred a short time back of making their exhibition smaller in quantity and consequently higher in quality so as to be worthy of the new M'Lellan galleries. Many nice things were, of course, said in relation to the exhibition and its promoters at the "house warming" banquet held in the Galleries, and amongst these were some words of the Earl of Crawford and Balcarres in proposing the toast of the evening, which we think are worthy of quotation. His Lordship said:—

Glasgow stood for a definite and clear-cut personality in the art of the day, recognised here and admired abroad. On an occasion such as that one instinctively asked what would the future bring forth. The functions of municipalities, at any rate of public bodies, were of necessity limited. They could no longer entrust great and far-reaching commissions to artists such as the case of the municipality of Sienna, to which the Lord Provost had alluded. Their patronage was and must be restricted. The more alert public opinion became and the more zealous and keen the citizens of a great city became, the more surprising would it be to everybody concerned how many opportunities presented themselves to those responsible for the government of a great city, and it was not merely in connection with a school of art—not merely the control of a gallery of art—but it was more in the external amenities of a town that the functions and the duties of a municipality would become more manifest. The care of their own public buildings, the whole science of artistic town-planning—not only well developed but almost matured in Germany, whereas here they had scarcely made a start as yet—all these opportunities, as public opinion became more and more informed as to the interests of the case,

would become far more frequent. Glasgow should insist that every public building erected within its marches—not merely the buildings for which the Corporation was solely responsible but every building so far as influence could be properly brought to bear upon private persons and public firms and of course as regards Government buildings—Glasgow should insist that every public building erected within its marches was a credit to Glasgow and a credit to the authorities responsible. Even in the erection of a cabmen's rest or a street lamp it was possible to do the right thing as well as the wrong thing. He believed that the public, after years of strenuous propaganda by persons who were before their time, was becoming more and more alive to the potentialities of civic government in that direction. These opportunities, however, connoted dangers and difficulties. It would be paradoxical to expect to avoid mistakes and criticism. Many more indeed than most of them believed were watching the attitude of Glasgow not only with interest but with confidence. Glasgow was sufficiently strong to take a strong line, and if Glasgow was sufficiently confident she would not only take that strong line but the line would lead in the direction of success. Glasgow could be an example and an encouragement to others as well as a blessing to herself.

The dispute between the Master Builders' Association and the London Labourers' Council concerning the demand of the latter for an advance of a halfpenny per hour and overtime rates from 5 P.M. to 8 P.M. on ordinary weekdays at the rate of time and a quarter, with time and a half on Saturday afternoons from 12 to 4, practically seems to have resolved itself into a dispute as to whether the new rates should take place forthwith or six months hence. Considering the advance in prices of food and clothing, the demands of the labourers can hardly be considered exorbitant, but it is obvious that sudden augmentations of the rates of wages are likely to afflict very hardly those builders who are in the middle of contracts based upon the previously existing scale.

The verdict of the jury which has been considering the fatal accident in Dublin by which seven persons were killed by the falling of two tenement houses on the 2nd instant was to the effect that the cause of death of the persons named was as described by the medical witnesses who were examined at the beginning of the inquiry. They were also of opinion that the cause of the collapse was unforeseen and that they had not sufficient evidence to enable them to say what the cause of the collapse was. Such a finding in relation to old buildings may seem unsatisfactory to the man in the street, who, when anything happens, always wants to find a scapegoat, but with regard to buildings particularly, the margin of safety which was provided when they were first erected is in constant course of diminution by age and wear. There comes a time when this diminution amounts to a close approximation to the elastic limit of material, when deterioration and fatigue proceed in geometrical ratio. Which particular part of the building it is that first falls is a matter which it is almost impossible to predict or to accurately define after collapse, so that we are quite prepared to endorse the finding that no one in particular was to blame and that no precise explanation can be given for the fatal accident.

COMPETITION NEWS.

BURY.—The Housing Committee have decided to obtain competitive designs from architects for the erection of ten houses, such designs to be to specifications prepared by the borough engineer.

EDGBASTON.—The designs for the proposed St. Germain's Church must be delivered to Mr. Charles E. Bateman, F.R.I.B.A., the assessor, by December 6. The author of the selected design will carry out the work; and premiums of £10 10s. will be awarded to five other designs. The expendi-

ture will be limited to £6,500. The conditions may be returned and any questions asked not later than October 6.

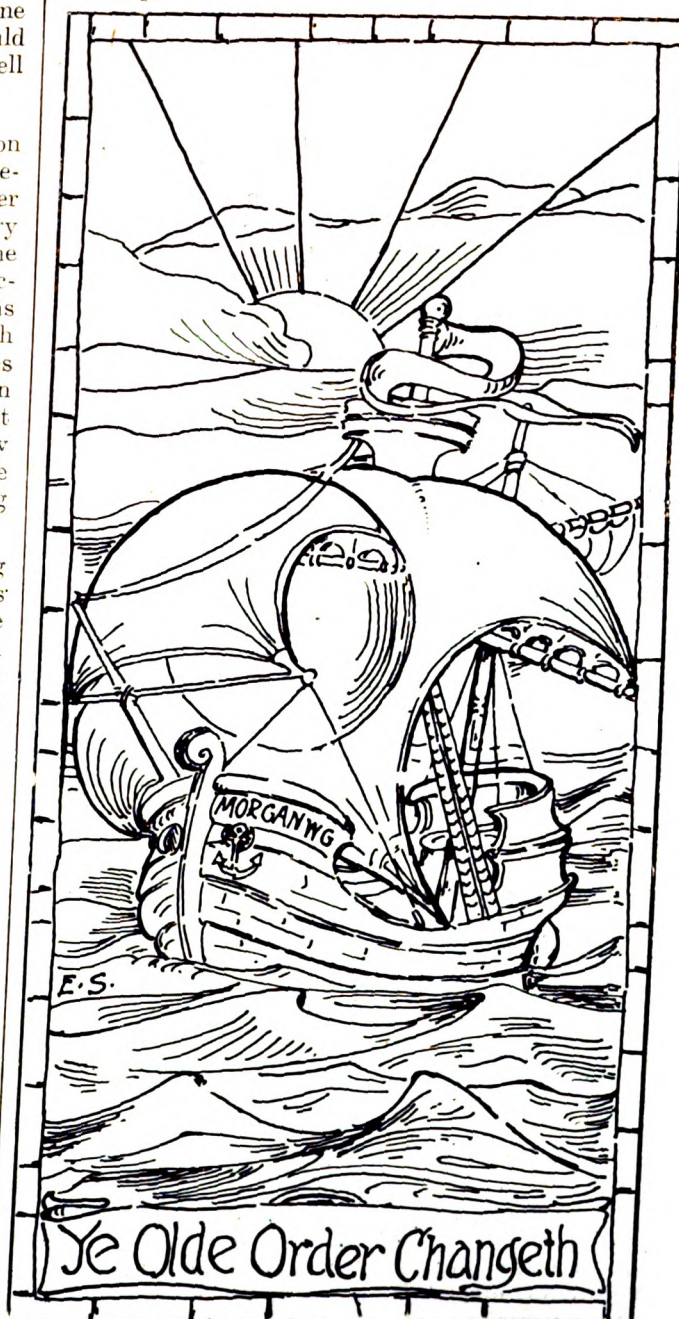
LIVERPOOL.—A special committee of the Corporation, assisted by Mr. Henry Hartley, F.R.I.B.A., as assessor, are considering the competitive plans for a sanatorium containing 250 beds, proposed to be erected at Fazakerley. It is understood that about thirty sets of designs were submitted.

SUNDERLAND.—The assessor nominated by the R.I.B.A. to adjudicate upon the designs for the Training College has declined to undertake the work at the fee fixed by the Town Council, viz. 25 guineas. Mr. Reginald Blomfield, A.R.A., supported the assessor's claim that the fee should be in accordance with the Institute scale, viz. 30 guineas and one-fifth per cent. The Education Committee have been authorised to make the best possible terms.

ILLUSTRATIONS.

THE CARDIFF COAL AND SHIPPING EXCHANGE.

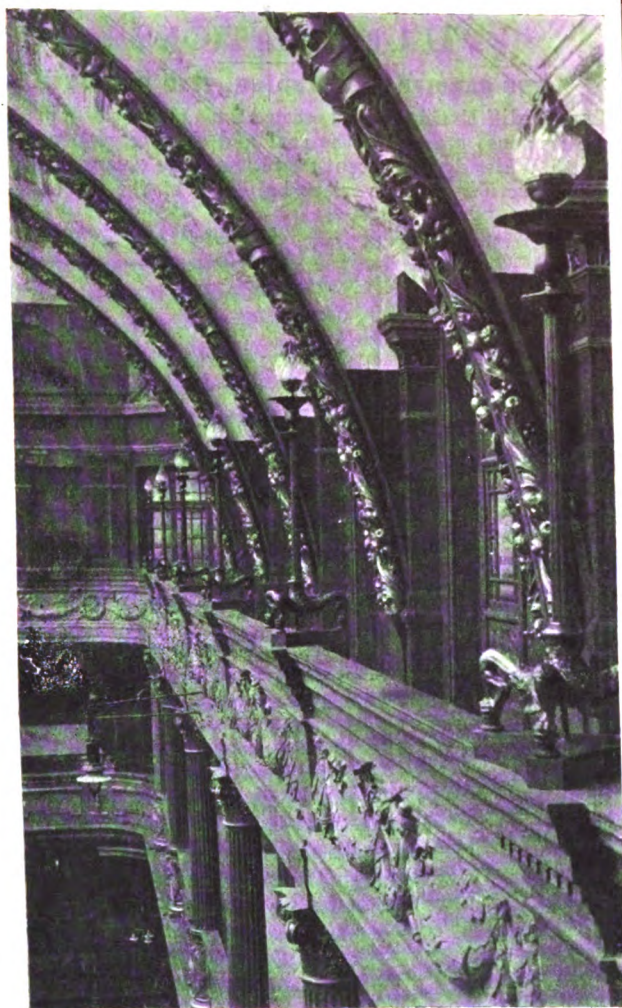
THE Cardiff Exchange was erected some thirty years ago, but the immense growth of the coal and shipping industries of South Wales during recent years has made enlargement and reconstruction of the various buildings of the Exchange a necessity.



GLAZING IN READING-ROOM REPRESENTING "GLAMORGAN."

We illustrate some details of the large hall, which occupies the central position, and which, with its reading-rooms, &c., has been considerably increased in space by the extensions devised by Mr. Edwin Seward, F.R.I.B.A., in the scheme carried out last year as improvements to the build-

ings, of which he was originally the architect. A feature of interest has always been the sunk floor of this large hall. The building was erected on a substratum which was virtually alluvial mud, 30 feet in thickness, resting on an old (geological) sea beach. The walls were built upon a series of concrete pillars and brick arches taken down through the layer of mud, but the floor in question was allowed to gradually sink, a broad raised platform being maintained around the hall at its original altitude. This difference of level had been found to provide convenient arrangements in various ways for the members of the Exchange in their daily use of the hall, so that in the recent reconstruction of floors, &c., this variation of level has been retained. The galleries shown in the general view provide a series of open corridors for reaching the offices which surround the hall.



UPPER GALLERY AND RIBS OF ROOF, WITH BRONZE LIGHTING STANDARDS.

The general contractors for the work were Messrs. E. Turner & Sons, Ltd., of Cardiff. Carving and modelling work were executed by Mr. T. A. Jones, of Cardiff; bronze work by Messrs. Elkington & Co. and the Birmingham Electric Lighting Co.; stained glass by Messrs. Wm. Pearce, of Birmingham; heating by Messrs. Prosser, of Cardiff; and electric lighting by Mr. Ralph Nance, the flooring and parquet by Messrs. B. Ward & Co.

An elaborate scheme of furnishing has later been carried out by Messrs. Maple & Co., of London.

COALBROOKDALE VICARAGE, SHROPSHIRE.

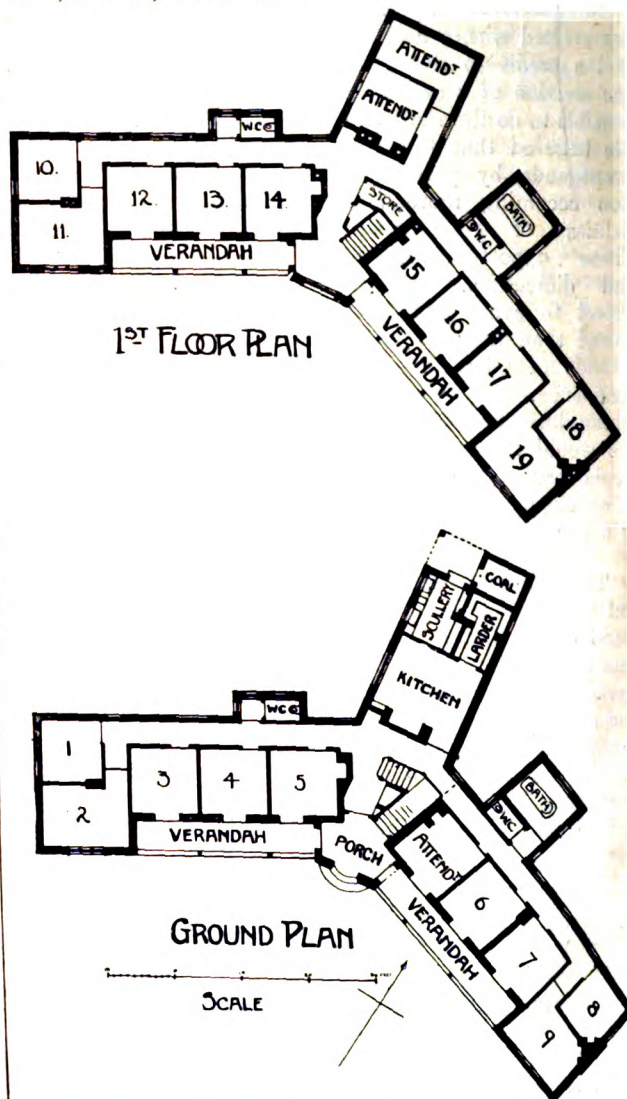
BUILT on a hillside sloping about one in three, with a clay, stiff hill behind, the site needed much preparation in the way of retaining-walls, sloping paths, and steps. Faced with Ruabon bricks and Bath stone dressings, the house is covered with Lightmoor tiles. The steel casements were from Messrs. Harry Hope & Son. Grinshill stone was also used for the approach ways. The late Mrs. Darby having given the vicarage, her arms are carved over the staircase window.

Mr. Charles Smith, of Broseley, was the contractor, and Mr. Harbottle Reed, F.R.I.B.A., of Exeter, the architect.

GRENDON ALMSHOUSE INFIRMARY, EXETER.

THE infirmery has been erected for the Exeter Municipal Charities Trust, to provide quarters for almsfolk who are

unable to cater for themselves. A bed-sitting room opening on to a two-floored verandah permits of their being wheeled into the open air, and a sunny aspect has been given to the building, which, constructed of brick and tile with oak verandahs, has been erected at a very moderate cost, and provides quarters for twenty in addition to the attendant's rooms, kitchen, and offices.



Mr. George Herbert is the builder, the central heating by Messrs. Wippell Bros. & Rowe, the block floor by Mr. J. R. Gibbard, the architect being Mr. Harbottle Reed, F.R.I.B.A., all of Exeter.

SKETCHES IN THE WEST COUNTRY.

EVESHAM is a delightful country town, and visitors with architectural tastes will appreciate its quaint old half-timbered nooks, its charming churches, and the splendid detached bell tower, which forms a conspicuous feature of the landscape for miles around. The churches of All Saints and St. Lawrence are within a few yards of each other, and both are particularly interesting, each possessing noteworthy chantries with fine fan-vaulted ceilings. The Almonry, an old house on the Green, and, as its name implies, once attached to the Abbey, has just recently been restored under the care of the present occupier, who has stripped off the plaster, disclosing the fine oak timberwork, and made what was till recently a group of dilapidated cottages into a fine dwelling-house. The broad High Street is also of interest, there being several Georgian houses with wrought-iron gates, &c.

The "Cotswolds," and the type of building the name implies, are very familiar to architects and to all lovers of simple and unpretentious architecture. The sketches are all of more or less well-known Cotswold villages, and are typical of the methods and means employed by the old builders in achieving the pleasing results they did. Happy proportions, wall space and windows, sturdy chimneys, a little relief perhaps with a name and date tablet, a nicely moulded finial, and, fitting climax, a roof of stone slates of delightful texture forming a combination that never palls. The buildings are the very essence of sanity, and the logical outcome of the right use of materials indigenous to the country.

METALS FOR STRUCTURES.*

By A. T. WALMISLEY, M.Inst.C.E.

FROM an early date Birmingham has been a seat of industries in metals both as regards manufacture and construction. Other towns have specialised with the advance of the times, but in Birmingham we find a combination of trades which render it a metal centre, and hence it is hoped that a paper which presents an opportunity to elicit a discussion on the development of various alloys used as constructive material may appear suitable for a meeting of the Engineering Section of the British Association. The word "metal" appears to have been derived from a Greek word signifying "in quest of other things," and seems to apply appropriately to those alloys for which Birmingham has an acknowledged reputation. Such alloys are not mere mechanical mixtures, but homogeneous combinations of two or more metals secured by fusion, and it is in quest of their use to obtain certain characteristics more suitable for special purposes than the natural qualities possessed by the original constituent elements that the manufacture is made.

It is mainly in connection with iron and steel framework that various metals are introduced by the engineer in a construction, and the question of their durability is one of the leading topics of the day. We know that iron is not an imperishable material. Its life depends upon the agencies to which the metal is exposed. Although it undergoes no alteration either in oxygen or in dry air, yet when subject to humidity in situations accompanied with hindrance to evaporation the carbonic acid in the atmosphere, though comparatively small in amount, will exert its influence in the formation of an oxide known as "rust," and this rust will become accelerated when attended with the emission of sulphur fumes. The rust does not adhere permanently to the surface, as in the case of zinc and of copper coverings, but in the case of iron falls away and allows further flakes to be formed in a similar manner. It becomes incorporated with any paint covering the iron surface. Hence the importance of scaling iron prior to repainting.

In the case of both wrought-iron and mild-steel framework the action is retarded by continuity of form and accumulation in masses, but is more vigorous in thin isolated sections. Hence plate girder work may be considered less corrosive than lattice work. Pieces of iron which are kept in a state of constant vibration oxidise less rapidly than those which remain at rest; for example, the rails of a railway upon which a constant traffic runs rust more slowly than those upon which there is little or no traffic.

In general hard and crystalline iron is less oxidisable than ductile and fibrous iron. Malleable iron rusts quickly in moist air, but stands salt water better than cast iron. Cast iron is not so readily oxidised in moist air as wrought iron, but in salt water cast iron gradually softens. Being affected by impurities in water, corrosion is especially accelerated by the presence of decomposing organic matter or of free acids. Cast-iron water pipes laid in gas-soaked soil or in ashes in which there is sulphur, or in certain clays in the London area, have been found to deteriorate rapidly, the iron becoming in a few years converted into a chemical union of carbon and iron known as plumbago, so that it could easily be cut out with a pocket-knife, while other cast-iron pipes laid in suitable soil have lasted and been in use over sixty years, the metal appearing as good as when the pipes were laid.

Steel is more easily oxidised than wrought iron and far more easily than cast iron. Generally speaking, though the oxidation of steel is faster than that of iron, it is more uniform, and the corrosion of both iron and steel is more rapid when partly wet and partly dry than when wholly immersed in water or wholly exposed to the air.

Corrosion may also be accelerated by the contact of iron with any metal which is electro-negative relative to the iron, or, in other words, has less affinity for oxygen or with the rust of the iron itself. If two portions of a structure of iron are in different conditions so that one has less affinity for oxygen than the other, the contact of the former may under certain conditions make the latter oxidate or become an oxide rapidly. In the case of an iron boat in which steel rivets were employed in the repairs of an iron plate on the top of tanks under a boiler the steel oxidised at the expense of the iron, a galvanic couple being formed. In a steel boat in which iron rivets were used in repairing the deck these

became slack, and had to be replaced by steel. The softer material may have sheared by the harder steel, but the wearing away was doubtless accelerated by galvanic action. The importance of thoroughly removing any scale from a steel surface is seen in the fact that galvanic action may be set up between the adherent scale and the adjacent bare portions of a steel surface, the latter suffering locally and pitting taking place; but it is more difficult to remove scale from steel by chipping or scraping than it was to remove scale from iron.

Ordinary lead paints, especially red lead, are often used for protecting iron and steel surfaces, but all coatings unless they adhere chemically to the surface are liable to perish in a variety of ways. Oxide of iron paints are preferable for iron and steel work generally, as in the former case galvanic action may be set up between the lead and the iron, especially if lead is present as metallic lead.

With regard to corrosion, in examining the viaduct of the Prince of Wales Pier at Dover, where the deck girders had a clear headway of 15 feet above the level of high-water spring tides, the under sides and bearings of these girders exhibited most corrosion. Upon the supporting piles the maximum corrosion occurred at high-water level. Below this level the shell incrustation seemed to form a protection, because if it were removed by hand the black varnish covering underneath which had been previously applied appeared to be undisturbed. The under-deck parts and the troughing in the viaduct are examined, cleaned, and black-varnished periodically, while all portions above deck are repainted.

Nothing appears to equal black varnish as a protection against corrosion when laid upon the hard metal, preferably applied upon a dry surface, but it is necessary to prepare the surface to receive the varnish by cleaning off any scale with a wire brush.

Corrugated sheets are made by passing them between grooved rollers or dies which force and bend them into a series of corrugations, thus contributing to their stiffness and rendering them comparatively thin sheets suitable for constructions where flat sheets would prove too weak.

The sheets when used for roofing should overlap about 6 inches in girth, riveted 9 inches apart, and double riveted at the cross joints. The usual thickness for roofs is Nos. 18 (= .048 inch) and 20 (= .036 inch) S.W.G.

Iron sheets coated with zinc and known as galvanised iron have been when corrugated more used for roofs than any other metallic covering. In pure air these are long-enduring if the quality be good. But these thinner sheets may be easily pierced and a surface crack or scratch of the zinc allows the commencement of rust, the crack developing into a serious rent, when the sheets become worthless. In regard to endurance against rust, good iron well galvanised will last longer than thicker sheets of inferior quality.

In 1861 the dome of the Borough Market, London Bridge, was covered with corrugated iron, but in 1891 this was found to be so corroded and riddled that it was removed by the writer when he reconstructed the present roof over the market, and removed the roof from the vibration of the adjacent railway.

Galvanising is an arbitrary term applied to the process of coating iron with zinc or spelter. Where it is necessary to place iron in contact with zinc it should be galvanised. The value of the galvanised sheets depends upon the quality of the iron, the quality of the spelter, and the care with which the process is performed.

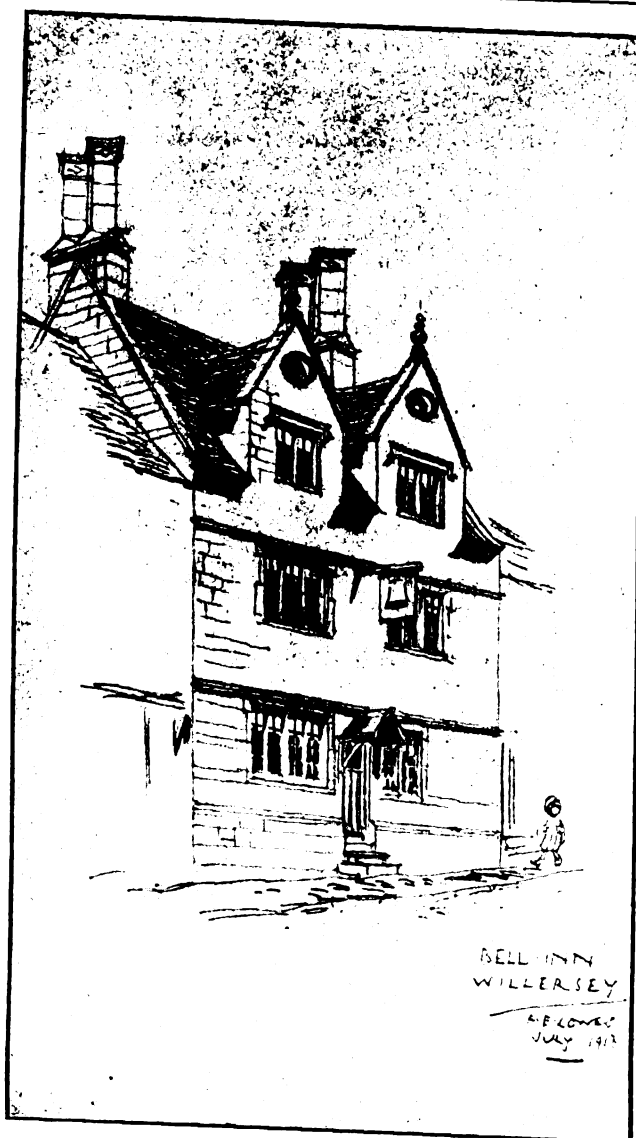
The coating of zinc on iron is necessarily very thin, because the adhesive properties between zinc and iron is limited, and therefore it is impossible to put on a heavy covering.

The sheets to be galvanised should be of B.B. Staffordshire iron or of steel of equal quality.

The best virgin spelter, not less than 98 per cent. of which must be pure zinc, should be used and the sheets should be well and evenly galvanised with zinc spelter capable of withstanding the following sulphate of copper tests. Sulphate of copper will not adhere to a zinc surface, but will adhere to a clean iron surface.

Strips cut by the inspector from one or more of the sheets are to be immersed in a fully saturated solution of sulphate of copper (one part of sulphate to four parts of water at 60° Fahrenheit) for one minute, when the strips are to be withdrawn and wiped dry. This operation is to be repeated four times, after which the galvanised portions of the strips should show no signs of copper deposit.

* Read at the British Association Birmingham meeting, 1913.



The mild steel used should be of such quality as to allow before and after galvanising, being folded close with a wood mallet in either direction of the sheet.

The coating of zinc to increase the weight at least $2\frac{1}{2}$ ounces per foot super flat—i.e., $1\frac{1}{4}$ ounces on each side of the sheet.

Commercial sheets are usually galvanised prior to corrugation. If specified to be corrugated first, the sheets must be subsequently dipped and may take 5 ounces per foot super.

Rivets for galvanised sheets should be of extra soft iron for cold riveting.

The following specification may be adopted in railway work:—The galvanised iron sheets to be No. 18 B.W.G., riveted at all laps with galvanised iron rivets and burrs, and secured with galvanised $\frac{3}{8}$ -inch bolts to iron work and round headed screws to wood work. The sheets to be in the longest possible lengths.

All laps and bolt and screw holes to be painted with red lead, ground in oil to secure watertight joints. The curved corrugated sheets to be bent to shape before being galvanised. The corrugated sheets to be made from soft fibrous and uniform material perfectly free from laminations, buckles, blisters, and all defects. The sheets to be carefully sheared to dimensions, thoroughly cleansed and galvanised with best zinc to the extent of .15 lb. per foot super. (plain), including both sides. The galvanising is to be well executed, the sheets being drawn through the flux, and all to have two coats of turpentine, both sides, before leaving the manufactory.

A condition may also be added to the specification that samples are to be provided by the contractors on the requisition of the engineer, and must stand the tests with sulphate of copper, as above described.

The durability of galvanised corrugated iron has no comparison with that of zinc, which, when well laid, makes one of the best roof coverings, and will last for many years without appreciable deterioration.

Zinc is protected, like lead, from further corrosion by the first coat of oxide which forms on its surface under ordinary circumstances.

Neither iron nor copper should ever be placed in direct contact with zinc when there is the least chance of moisture being present, as the result would tend to its early destruction. Contact with lime and brickwork containing soluble salts acted on by moisture in the air also destroys zinc, but Portland cement does not appear to be so injurious.

In laying zinc it should be not laid on oak boarding, which tends to hasten its decay. Deal is preferable, but it must be dry and free from moist atmospheric influence. It is well known that experienced carpenters and joiners do not leave their tools for any length of time upon fresh-sawn oak on account of the acid it contains. The heads of boarding nails should be well punched in. Contact with iron, lime, and the use of iron nails should never be permitted. No nails should appear on the surface. Soldering and all unnecessary contact with lead should be avoided. Rolls, drips, and falls should be so arranged as to permit expansion and contraction, which is far greater than in other metals.

For the last pier shelter at Ramsgate Harbour the Board of Trade used corrugated zinc of No. 16 gauge. In 1884, on the removal of some sheds at Portsmouth that had been covered with zinc for many years the zinc was found to be in good condition.

Of course, in making comparison it must be borne in mind that there was best Veille Montagne zinc and commercial size zinc, so that there was No. 18 gauge corrugated iron and commercial sheets. The weight per square should be equal to that of the Italian form.

For roofs of a permanent character not less than either No. 14, No. 15, or No. 16 gauge should be used in the case of zinc weighing 1 lb. $2\frac{1}{2}$ oz. to 1 lb. $8\frac{1}{2}$ oz. per square foot.

Zinc should be of the best quality, its durability depending mainly on the purity of the spelter from which it is made. If it contains any iron it will not so well resist the action of the air.

The tenacity of zinc compared to lead is as 16.616 to 3.328, and to copper as 16.616 to 22.570; or, in other words, a given substance of zinc is equal (in tenacity) to five times the same substance in lead or about three-quarters in copper.

Copper is distinguished for its conductivity. It is always economical, especially for electrical purposes to use the purest copper obtainable in commerce, because any admixture of foreign matter increases resistance to conductivity.

Copper ranks next to gold and silver in hardness, and after gold and silver is the most malleable of metals. Its tenacity is next to iron, and its extreme toughness, combined with the fact that it possesses the power to resist moist air or air free from acid vapour, which would cover the metal with verdigris, has always caused copper to be very largely used in the engineering and shipping trades. Acid vapour produces an impure acetate of copper known as verdigris, which forms a protective coating to further oxidation over the surface so covered. The tensile strength of cast copper may be taken at 10 tons per square inch, while that of ordinary wrought-copper bolts and of wire is about 16 tons per square inch.

The melting-point of copper is exceedingly high—viz., about 2,000 degrees Fah., against 800 degrees for zinc and 630 degrees for lead. The specific gravity of ordinary copper of commerce is 8.2 to 8.5 as compared with 7.8 for iron, but rolled and hammered copper have a higher specific gravity than cast or crystalline copper—say, 8.8. For sheet copper manufacturers often introduce $\frac{1}{2}$ per cent. of lead before casting into ingots, but care is taken to let no lead remain in the copper after it has done its work as a slag-making or scorifying agent having the power to aid in dissolving the acids of foreign metals. All the lead must be removed by the oxidising action of the air, as the copper will not roll well if any lead is left in its composition.

The expansion of copper is only 19, against 28 for lead and 30 for zinc. Copper should be fixed in a similar manner to zinc. It should never be soldered. The best way to lay copper is to use wood rolls, but the caps must be welted on to the sheets and left open at the sides as with zinc or lead, and the saddles and stop ends should also be welted. The flat then practically forms one solid covering, while ample allowance is made for the slight expansion in copper, only about half that of either lead or zinc. As copper is softer than zinc and much thinner than lead, the caps are apt to open if not welted; while when welted there is no risk of leakage, even in very heavy storms. In the form of sheets

copper is employed for locomotive fire-boxes on account of its heat-conducting powers. Numerous compounds of copper have a place in industry, the most valuable of which are those in which tin and zinc are alloyed. With gold, silver, aluminium, nickel, antimony, and zinc, copper alloys may be formed, but in union with lead and iron it is unsatisfactory. Sheet copper on iron framework is always boarded, as a separator between the iron and the copper is needed.

Iron and steel are elastic up to about half their ultimate strength, but lead has no elasticity.

Lead is the most durable of all metals for roof covering, but its weight and cost generally forbid its use on sloping roofs when other and cheaper materials are available. Lead has much less tensile strength than either copper or zinc, and the sheeting suitable for roofs must be of a thickness giving about 6 lb. per square foot. Therefore, though it costs only about two-thirds the price per ton of zinc, it is dearer to use it, while the extreme ductility of lead renders a strong and close support of boarding necessary. Lead is the most frequently applied for flat surfaces and for girder seatings where the weight is sufficient to crush the load, so as to produce uniform distribution of pressure.

The weights recommended are as follows:—Roofs, flats and main gutters, 7 lb. lead; hips, ridges, and small gutters, 6 lb. lead.

Gutters and flats should have a fall of at least 1 inch in 10 feet. Tin pipes and copper pipes lined with tin have been proposed as substitutes for lead pipes owing to the action of soft water on lead, but they are too expensive for general adoption.

The surface of lead becomes of a darker hue by exposure to the air, and a lead surface is affected when exposed to the sun. The dullness of lead is caused by the presence of a carbonate of the oxide. When the oxide is formed it attracts carbonic acid from the air, and by combining with it produces a carbonate which gives a dull tint to old lead. Polished metal does not so readily collect dew, because polished metal parts with its heat so slowly that the vapour of the atmosphere is not freely condensed into dew in its transit.

Platinum, a white metal so called from "plata," the Spanish word for silver, is capable of resisting oxidation altogether, and hence is adopted for the graduated area of delicate instruments necessary to be clear for observation.

Gold will not combine with oxygen of itself—i.e., without aid.

The alloy of some baser metal used to make silver hard is found, however, to oxidise more quickly than the silver itself. German silver is a kind of brass consisting of copper, zinc, and nickel, the latter used to whiten it. It is found to have a great affinity for oxygen and shows its oxidation by a yellow tarnish.

It is well to be reminded in considering the matter that moisture is a carrier, and that the tarnish of copper and zinc is produced by oxygen from the moist air acting upon the metal surface and covering it with a dark tarnish.

Gunmetal is an alloy of copper and tin, consisting of eight or nine parts copper to one part tin. Its name is derived from its employment as the metal from which large guns were formerly cast.

Tin, though a soft metal by itself, hardens copper more than zinc; but tin possesses low ductility and tenacity, and cannot be drawn into wire. Gunmetal is used in pump work where the use of iron would be objectionable on account of its liability to rust, and it is also adopted for the journals of shafting.

Ordinary brass, an alloy of two parts of copper to one of zinc, has been used for the cheaper kinds of cocks, lubricators, and pumps. Lacquering is a process adopted to prevent brass tarnishing.

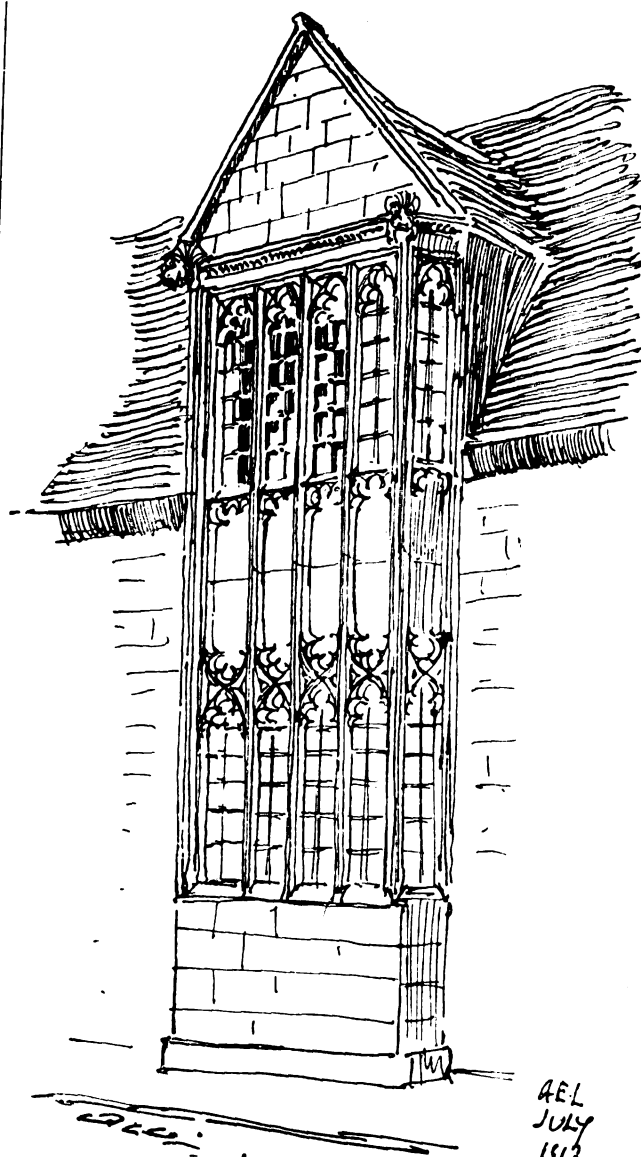
Muntz metal, an alloy of 60 per cent. copper to 40 per cent. zinc, has superseded copper for sheathing the bottom of ships, and keeps cleaner than copper. It is rolled into sheets or worked into bolts at a red heat. The sheets are subsequently pickled in weak sulphuric acid and are then washed with water.

Muntz metal has also been used for the tubes of locomotives and of condensers.

Bronze is an alloy of copper and tin in varying proportions, the proportion of tin being 8 to 20 per cent. It possesses great fluidity when melted, slightness of contraction on solidifying, together with characteristic density and hardness.

The object of toughening is to obviate brittleness.

Manganese bronze is an alloy of copper and ferro-



BAY WINDOW
GREVILLES HOUSE
CAMDEN GLOS

4EL
JULY
1913

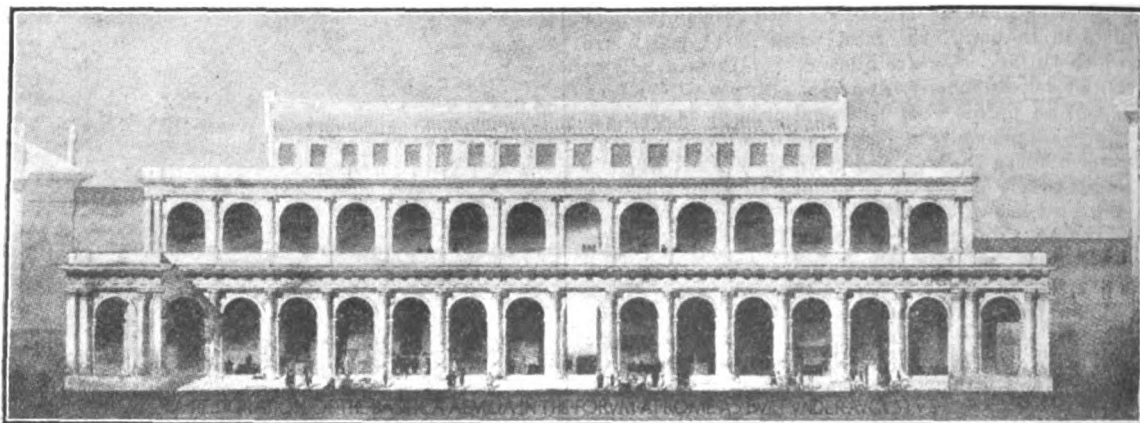
manganese serviceable in propellor blades on account of its toughness.

Aluminium in union with copper is also usefully applied. The special characteristics of phosphor bronze are its non-sparkling quality and its resistance to corrosion under the influence of acid water, shown (as pointed out in a paper read before the Institute of Metals in 1908) by

1. Its freedom from corrosion by salt water, which is apparently largely due to its freedom from zinc.
2. Its high qualities as a mechanical constructive material as compared with an ordinary zinc free bronze.
3. The small effect which rise of temperature has upon its mechanical properties, which remain practically unimpaired at temperatures at which zinc containing copper alloys exhibits serious drops in strength.
4. A spark cannot be readily obtained from it by a blow.
5. Phosphor bronze of high phosphorus contents possesses low-friction coefficients for most metals, and are hard enough to resist abrasion well.

Copper castings are apt to prove porous, as the metal does not run well in the mould, but by the addition of small quantities of phosphorus soundness of casting is produced.

For phosphor bronze bearings the amount of phosphorus may be 1 to 1½ per cent., or possibly higher. From the results of the chemical and mechanical tests recorded in the above-mentioned paper there appears to be some indication that in a given phosphor bronze alloy of definite composition containing from 88 to 90 per cent. of copper the raising of the amount of phosphorus present would tend to raise somewhat the ultimate tensile stress, but at the same time lower the percentage elongation of the material.



BASILICA AEMILIA.

Phosphor bronze sheet is superior to copper in withstanding the action of sea-water. In a comparative experiment made at Blankenberghe, lasting over a period of six months, between the best English copper and phosphor bronze the following results were arrived at:—The loss in weight due to the oxidising action of sea-water averaged for copper 3.058 per cent., while that of the phosphor bronze was but 1.158 per cent.

To ascertain the resistance to the chemical action of dilute sulphuric acid, two similar sheets of copper and of phosphor bronze were immersed in an acid of 10 degrees Baume strength, and at the temperature of the surrounding atmosphere; after three months it was found that the copper had lost 4.15 per cent. and the phosphor bronze only 2.3 per cent. in weight.

Such an alloy can be cast like ordinary bronze, but excels the latter in hardness, elasticity, toughness, and tensile strength. It is used for bushes as employed in the form of a length of metal let into round holes or orifices, or into the sheaves of such blocks as have iron pins to prevent their wearing, also for friction by bearings and gearing subject to great stress and shock, as well as for sliding surfaces with the use of steel shafts, as a steel or wrought-iron shaft running in a cast-iron bearing would be liable to grip and prevent sliding.

Delta metal is a kind of improved brass consisting of zinc alloyed with iron and with copper, but is said to possess the qualification of being non-magnetic. It is claimed that it can be cast or can be rolled hot or cold, and has small liability to corrosion.

Among other alloys we have bell metal, consisting of three to five parts copper to one part of tin. It is therefore a variety of bronze, being a copper-tin alloy. The presence of lead even in minute amount affects the sonorousness of the metal, as it is neither hard nor elastic. There is also Babbitt's metal, for which the original specification of the inventor (Isaac Babbitt) contains over 86 per cent. of tin and white-metal alloy, usually consisting of twelve parts of tin with one of antimony with a little copper.

The composition of white bearing metals admits of wide variation, but the chief elements of the alloys are copper, tin, zinc, antimony, and lead.

In the subsequent discussion Mr. Oberlin Smith, of Bridgdon, America, inquired whether in England steel pipe was being preferred to iron. In America iron was being preferred to steel pipes, and iron was also considered better for smoke stacks, as well as for water pipes underground.

Replying to Professor Kapp (the chairman), the author said the use of aluminium copper was going rapidly forward for motor-car work. As to the preserving effect of zinc, that was no doubt correct, but it was very essential for the wood underneath to be well aerated by the free admission of air. Steel pipes had been used in many cases underground, but that was mostly for export purposes, where carriage was a consideration. In the old country they had found cast-iron pipes very satisfactory for water mains, and were disposed to stick to them.

THE Royal Commissioners for the Exhibition of 1851 have awarded the Rome scholarship in sculpture to Mr. Gilbert Ledward on the recommendation of the Faculty of Sculpture of the British School at Rome. Mr. Ledward is twenty-five years of age, and has been a student at the Royal College of Art and Royal Academy.

THE STOCK EXCHANGE OF ANCIENT ROME.

THE Italian archaeologists, Senator Lanciani and Commendatore Boni, who have been in charge of the Roman Forum, have, up to now, been rather doubtful of the identity of the ruins which lie opposite the Basilica Julia and between the Curia and the Temple of Antoninus and Faustina. The recent excavations by Commendatore Boni seem, however, to confirm the original theory that the ruins are those of the Basilica Aemilia, or Stock Exchange of ancient Rome. Enough fragments remain to make it possible to restore this basilica, on paper.

Up to the time of Augustus and Tiberius there had been a portico on that side of the forum, with the Basilica Aemilia behind it. During the reign of these two emperors the portico and basilica were united in one structure, and it is this restored building which is shown in the illustration. The basilica was burned down, probably during the invasion of Alaric, and afterwards rebuilt, but the later work is so poor that it may easily be distinguished from the earlier. A part was still standing in the fifteenth century, but this was torn down by Bramante for use in the Giraud Palace.

The building was designed for practically the same purposes as are our modern stock exchanges. On the side facing the forum there ran a long arcade, which was nearly opposite that of the Basilica Julia, as above noted. A row of shops, used by bankers, money-lenders, jewellers, and men with similar interests, opened into this arcade. The principal business was carried on behind these shops, in a large hall about 95 feet wide and 228 feet long, with one aisle on the side toward the forum and two aisles on the opposite side. (These aisles are included in the dimensions.) There were galleries above, which, together with the central hall, were covered with flat, wooden ceilings. The principal entrance was on the side towards the curia, but a large door near the middle of the hall opened toward the forum. There only remain *in situ* the foundations of the arcade, the walls of the shops, and the floor of the large hall, but enough fragments are left wherewith to reconstruct the Doric order of the arcade. A drawing by Giuliano da San Gallo (1445-1516) has also been preserved, which shows part of one side of the building as it stood in his time. There are triglyphs on the corners. (All Roman Doric buildings seem to have had triglyphs on the corners in spite of the theoretical order of Vitruvius.)

The order of the second storey of the interior, which can be completely put together, and the above-mentioned Doric order are to be found, with some other details, in Despony. The two interior orders were both Corinthian, with shafts of red African marble; there also remains an entablature, of the same size as that in the upper interior arcade, which was possibly Ionic, and belonged to the upper exterior arcade. Also, there are some door-posts, richly decorated with acanthus leaves, which probably served as models for much of the Renaissance ornament. The refinement and execution of all the mouldings are almost Greek in character. The pavement of the central hall consists of slabs of coloured marble, symmetrically laid; but, as this pavement is somewhat lacking in design, it is possibly of later date. Some coins became imbedded in this pavement at the time of the fire, and there they still remain.

When the buildings of the forum were standing, the long arcades of the two basilicas opposite each other must have given it that symmetrical appearance which it now so sadly lacks. The confused collection of temples,

apparently revealed by the plan, would have appeared much more orderly; the general appearance of the forum would appear to have borne a slight resemblance to the Piazza of St. Mark at Venice. The addition of a stock exchange to the other buildings also helps to complete the modern idea of a civic centre. With the exchange on one side, the courthouse on the other, the municipal building across one end, and the spaces filled up with temples—the churches of antiquity—the forum would seem to offer in many respects and with due consideration for present needs, a good model for the civic centres of our own time.—RICHARD HAVILAND SMYTHE, Fellow in Architecture at the American Academy in Rome.—*Journal of the American Institute of Architects.*

THE LAKE VILLAGES IN THE NEIGHBOURHOOD OF GLASTONBURY.

At the meeting of the British Association the following report was presented by the committee, consisting of Dr. R. Munro (chairman), Professor W. Boyd Dawkins (secretary), Professor W. Ridgeway, Sir Arthur J. Evans, Sir C. Hercules Read, Mr. H. Balfour, and Mr. A. Bulleid, appointed to investigate the lake villages in the neighbourhood of Glastonbury in connection with a committee of the Somersetshire Archaeological and Natural History Society. (Drawn up by Mr. Arthur Bulleid and Mr. H. St. George Gray, the directors of the excavations.)

The fourth season's exploration of the Meare Lake Village by the Somersetshire Archaeological and Natural History Society began on May 15, 1913, and was continued until June 7. The ground excavated was situated in the same field, and was continuous with the work of 1910 and 1912. The digging included the examination of Mounds III. and IV., the S. quarter of Mound V., the N.E. part of Mound XIII. (remaining from last year's exploration), and portions of Mounds XV., XVII., and XVIII.

Structurally the excavations proved to be of considerable interest, and the number and importance of the relics discovered this season were greater than those of the previous year.

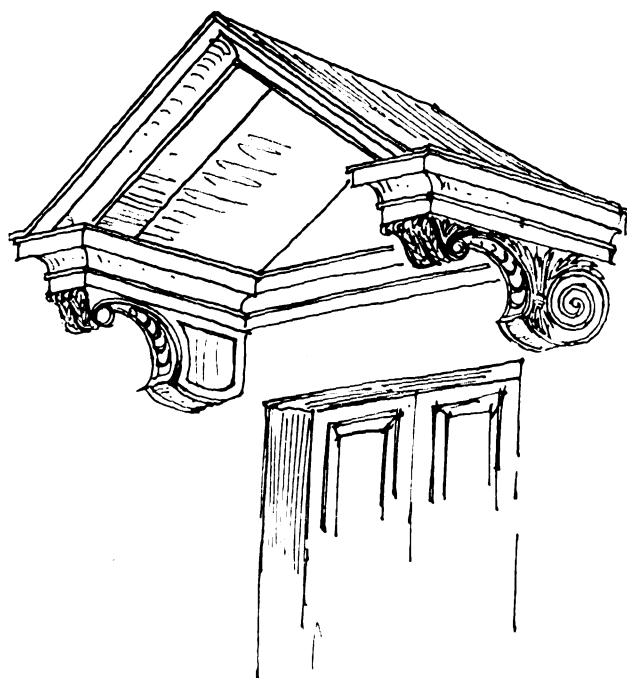
With reference to the construction of the mounds, the attention of the directors was centred in the examination of Mound XIII., which revealed many features of exceptional interest. This mound consisted of four clay floors having a total thickness of 6 feet 8 inches. The lowermost floor was subdivided into a number of thin layers of clay of various colours, each having a baked clay or stoned hearth in the centre. In all there were fourteen superimposed hearths. The hearths belonging to Floors i., ii., and iii. were not superimposed, and were situated several feet to the N.E. of those belonging to Floor iv.

The substructure underlying the clay was of an average depth of 2 feet in thickness, consisting of timber and brushwood, amongst which were several well-preserved wattled hurdles, pieces of worked wood, mortised beams, and squared planks of oak. The largest plank of split oak measured 18 inches in width. Near the N.W. margin of Hearths xi. and xii., belonging to Floor iv., two superimposed planks of oak of nearly similar shape and size were discovered, separated by a layer of clay 2 inches in thickness. Each plank was perforated with three circular holes arranged in line, the holes of the upper plank being placed immediately over the corresponding perforations of the lower. Each pair of holes was filled by a pile driven vertically into the substructure below. The corresponding edge in both planks was cut semicircularly, resembling somewhat the arms of a settle.

Among other points of interest may be mentioned the central post of the dwelling erected over Floor iv., which was situated near the E. margin of the hearths, and a large area of lias stone discovered near the N. margin of the mound having the appearance of a landing-place. Near the S.W. margin of the lias stone was a silty layer of clay containing water-worn pebbles, grit, and a number of flint flakes. This layer was at the level of Floor iv.

The structural details of Dwelling-mounds III. and IV. were of less importance. The substructure, however, was noteworthy on account of the absence of timber. Besides a little brushwood the foundation had been increased by a layer of cut peat placed on the surface of the bog. It was noticed that the substructure under the N.E. half of Mound XIII. had been covered with a thick layer of peat, amongst which were patches of compressed bracken and rush.

Small portions of Mounds XV., XVII., and XVIII., adjoining Mound XIII., were examined, but a description of



A. E. LOMES.
July 1913.

STONE DOOR HEAD.
CAMDEN. GLOS.

the structural details discovered is reserved, and will be incorporated in a future report when these dwellings have been fully explored.

The following is a summary of the objects found this year:—

Bone.—Two socketed tools with rivet-holes; a needle; an awl; two tibiae of horse, sawn and perforated; pieces of cut rib-bone, one having two perforations; parts of four worked scapulae (similar to several others previously found); several perforated tarsal bones of sheep or goat (? bobbins). Fifteen tarsal and carpal bones of sheep, not worked, were found laid out in rows in Mound XIII. in black earth belonging to Floor iv.—evidently a collection made for the purpose of converting them into tools.

Antler.—Eight weaving-combs, some incomplete, some ornamented; two "cheek-pieces" for horse harness; roe-deer antler knife-handle; several cut pieces of red and roe deer antler.

Beads.—Finely preserved amber bead (the second found at Meare); two glass beads (one with spirals); and a baked clay bead.

Bronze.—Pair of tweezers; two finger-rings; flat ring; rivets; and a few fragmentary objects. Also a solid bronze figure, perhaps intended to represent a boar with long ears—unfortunately, the facial portion has been broken, but it is seen that there was a perforation through the forehead. Along the back there is a groove, in which a thin bronze crest was inserted, traces of which remain. In length the figure is about 2½ inches; height over fore-legs about 1½ inches. It is similar in character to the series of bronze figures—three boars and two nondescript animals—found at Hounslow, and another boar found at Guilden Morden, Cambs.

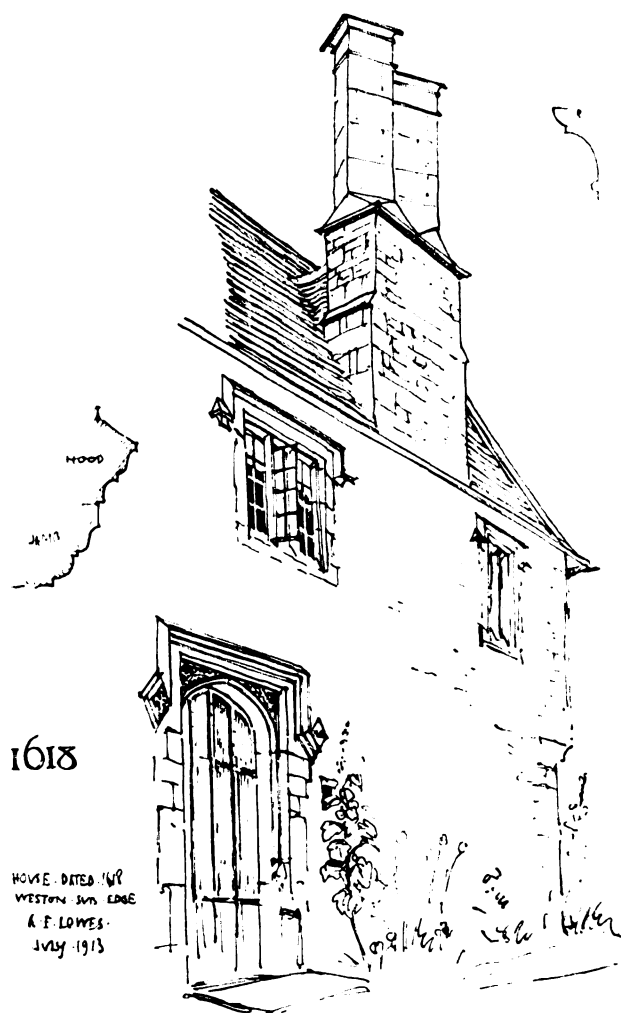
Crucibles.—Two fragments.

Lead and Tin.—Two lumps of lead ore, and a flat, wide ring, perhaps containing a large percentage of tin.

Iron.—The iron objects for the greater part are much corroded, and included a fragmentary ring encased in thin bronze, part of a file, a punch or narrow chisel, and a large pointed bar, of square section, which may have been an earth-anvil.

Kimmeridge Shale.—An earring; part of a vessel, or cup; a knife-cut armlet (split); and parts of lathe-turned armlets.

Pottery.—Mound XIII. produced a large amount of pottery, the thicker and ruder wares being found chiefly in the substructure. The proportion of ornamented pottery was again large, but there is a great amount of restoration work to do before the designs can be fully described. One ornamented bowl was revealed in six pieces, which, when joined, will make the vessel practically complete. The greater part



of a plain pot was discovered on the fourth floor of Mound XIII. Ornamented bases of pots were also found this season.

Flint.—Chipped and polished celt, of Neolithic type, length $4\frac{1}{2}$ inches (the second stone axe from Meare); an arrowhead and part of another; a hammerstone; a dozen scrapers; two cores; and a large number of flakes, some of which were burnt. Of the flint flakes, 154 were collected from Mound XIII, and sixteen from Mound III.

Sling-stones.—Two hundred and seventeen were collected this season, including eighty-nine from Mound III, and seventy-five from Mound XIII. Thirteen baked clay sling-bullets and four unbaked ones were also found. Ninety-one whetstones were collected, including fifty-seven from Mound XIII.

Querns.—Several quern fragments were found, but only one complete saddle quern.

Spindle-whorls.—Seven specimens, all of stone, were found this year in various stages of manufacture.

Human Remains.—Humerus found in the fourth floor of Mound XIII.

Animal Remains.—Plentiful, including several bird-bones. In the foundation of Mound XIII, a skeleton of roach (*Leuciscus rutilus*) was uncovered.

BIG BELGIAN CHURCHES.

By JOHN A. RANDOLPH.

A FAIRLY extensive knowledge of Belgium—at least that part of it including a line from Furnes to Ypres, and thence to Tournai, and *via* Mons, Namur, Huy, and Liège to Moll, and all to the north-west of that line—enables one to grasp the fact that the Belgian architects of the Middle Ages took delight in planning and building churches of great size, of noble proportions—whether simple or ornate; so much so, indeed, that in many cases the edifices were never finished.

At Alost, for instance, St. Martin's lacks several bays of the nave, and its tower; St. Jacques, at Antwerp, was intended to surpass the Cathedral, but only part of its tower was erected to that great building. The Cathedral itself has but one of its originally intended twin steeples, which St. Jacques was to outvie; and St. Paul's, in that

city—not an easy church to find, as it is approached by a mean and winding street—has no west tower; the huge church itself has much late, or debased, Gothic work and ornament on its façades, but houses round and against prevent a close inspection. An apology for a tower is at its east end.

The Cathedral and Notre-Dame, at Bruges, are well known; they too, especially the Cathedral, showing a boldness of construction and an air of defiance to the elements that are distinctly impressive; yet brick is the chief material used in both cases, stonework, of course, being employed in the tracery of the windows—and, now, on the stiff, new west front of Notre-Dame.

Ghent possesses three giant churches—St. Bavon, its steeple incomplete *as yet*, of enormous height and proportionately great width, the absence of capitals to the columns which rise to the spring of the vaulting accentuating the loftiness. The other buildings are the beautiful St. Michael's Church, with its clumsy truncated tower (it is to be hoped the hideous design for its completion, as shown by the model that was for many years in a side chapel of the nave, will never be carried out), and St. Pierre, a Renaissance structure with dome and east tower dominating that part of the city; it is also on a masterly scale, but in great lack of repair interiorly, the great overhanging cornice at the springing of the vaulting falling off piecemeal from time to time, and consequently the *paré* underneath is barricaded off. The interior is very white, and poor in ornamentation of the vaulting and architraves, and reminds one very much of the Cathedral of Namur.

Ste. Gudule, of Brussels, is one of the few great churches of the country which is complete; but "the Sablon" (as Notre-Dame du Sablon is called)—a fourteenth-century gem—has no tower, and its absence rather gives one the impression that the church is an unusually large and ornate conventual one.

Tournai Cathedral, begun in the Norman period, has had its huge choir erected in Gothic times, out of all proportion to the older part of the edifice; but in itself the choir is admirable in its respective measurements—those of height and width.

The beautiful proportions of the remarkable church at Tongres, near Maastricht, serve rather to deceive the eye as to the size of that structure; nevertheless, it ranks as one of the giants among Belgian churches, and its lofty fifteenth-century tower and choir can be seen for many miles; the nave was finished in 1240. It possesses, too, a very interesting Romanesque cloister, and the treasury of the church is rich in antiques and gold plate and relics.

Léau (curiously named in Flemish, Zoute Leenw, or Sweet Lion) is not far off. The east of the Renaissance tabernacle which is at South Kensington Museum is well known, the original being at Léau, as well as the fine wrought-iron corona. The church, of peculiar external arrangement and features, may be classed among the lesser of the giants, but it is of very considerable dimensions, and the architectural detail is perfect.

Tirlemont boasts of two great churches, which, as viewed from the train, seem to stand on the roof-tops of that hilly little town. One, Notre-Dame du Lac, the larger of the two, consists of choir and transepts and a beautiful tower at the crossing of the transepts, but no nave. The choir was completed in 1297, and the transepts two centuries later. The spire of the high steeple is of an elegant Renaissance pattern. The other church, St. Germain's, is partly Romanesque, with early Gothic triforium and windows, but it is not much less in size than its neighbour.

St. Sulpice at Diest, with unfinished fifteenth-century tower and west front of white stone, the rest of the daringly designed edifice of the fourteenth, being in deep red stone of the district, has a disappointing and very whitened interior, its great size being dwarfed, to the eye, by life-sized statues of saints, under heavy Renaissance niches, on every column right round nave and choir, all in unrelieved white. The window tracery and the transepts and choir are remarkably fine, the flying buttresses from the choir walls extending across the choir-aisles to the outsides of the radiating chapels, and having, in each case, two arches, one over the other. The easternmost chapel is incomplete, possibly on account of its intended site being occupied by the remains of a former church, of small dimensions. St. Sulpice is higher than St. Martin's at Alost.

Moll is one of the most striking churches in this part

of Belgium, with the simple walls and small buttresses, but of wonderful height, and with enormously long windows, especially in the transepts. Its tower, with the bands of white stone at regular intervals, on an otherwise dark-red ground, extending to about half-way up, as at Aerschot, is severely straight and simple, but of astonishing loftiness, unrealisable, perhaps, on account of its perfect proportion with the great church to which it is built. Strange to say, Baedeker makes no allusion to it. Still, in North-East Belgium, we cannot overlook the stupendous and rich Gothic churches of Lierre (with exquisite rood-loft of the fifteenth century rivalling those of Dixmude, Nieupoort, and Louvain), Gheel (two of them, but especially St. Dymphna's, one of the wonders of Belgium), Aerschot (also with a fifteenth-century rood-loft and beautiful paintings on panels in the chancel), Puers, near Antwerp (with great nave and west tower of Renaissance to superb fourteenth-century transepts and choir), and Herenthals (with lofty central tower and spire, but minus its Lady chapel, which was 100 feet long, but destroyed by fire a good many years ago). In this church is a quaint bracket, supporting a shaft in the choir near the chancel arch, in the form of a diminutive man on his back, with the shaft balanced on his feet and hands. There is also an exquisite altar-piece of the fifteenth century, with wonderful groups of figures, all on a small scale, but beautifully finished. The altar to which it belongs is in one of the side chapels of the ambulatory, and is of very German character. Turnhout, a few miles to the north of Herenthals, may also come into our category, and it is very Dutch in its severe simplicity, fine proportions, huge windows in lofty transepts, and with a very unusual arrangement of choir chapels, alternately gabled and apsed, the gabled ones receding considerably from the building-line of the apsed ones. The west door is under a pediment, very small and low, and between two singularly small buttresses.

A special mention should also be made of St. Quentin's Church at Hasselt, very well restored, with interesting choir chapels and picturesque sacristy and turret, and a Romanesque tower (with shallow arcades), surmounted by a graceful Renaissance spire. The interior has been admirably treated as to decoration, the main tint being pale primrose, and the late fifteenth-century leaves on the capitals gilded, with most pleasing effect. We are informed that this decoration has been designed by a former pupil of one of the branches of St. Luke's School at Ghent; if that is so, the new departure in polychrome work is emphatically to their pupil's credit and, indirectly, to that of the school, and it is devoutly to be hoped it will be widely copied by the other ex-pupils whenever they have similar opportunities.

Coming southwards to the more central part of Belgium again, the greatest of the churches is emphatically St. Peter's at Louvain—again unfinished, but destined shortly to be completed according to the model in the Town Hall, with two enormous octagonal towers at the west front, each with an open-work top storey and crowned by a pinnacled parapet.

St. Rombaut's, Mechlin—the Cathedral—is in reality very large, but the interior does not appear the size it is. Notre-Dame (the Gothic one, not Haenswyck) is apparently larger, and is a fascinating church exteriorly and interiorly, and its transepts are of great height. The window tracery is most refined and varied. St. Jean, also in that city, is a lofty and noble church, with singularly elegant steeple, but not at all unlike that of the one just mentioned.

Hal, a miracle of loveliness, with an unusual panelled west wall to the nave, and high altar at a great height above the nave, is also a miracle of size. The Renaissance high altar has been removed to a side chapel of the choir, and a new one erected in its place, but of questionable taste. The miraculous Madonna has been replaced in the new reredos.

Nivelles, St. Gertrude's (with a disappointingly plain and ugly interior, though on a great scale), has Romanesque cloisters and a very lofty tower and spire, flanked by corner turrets to a screen such as we have, in England, at Lincoln or Salisbury; and the church dominates the hilly town, and is a fine feature in the wooded landscape as seen from the North Station approaches by train.

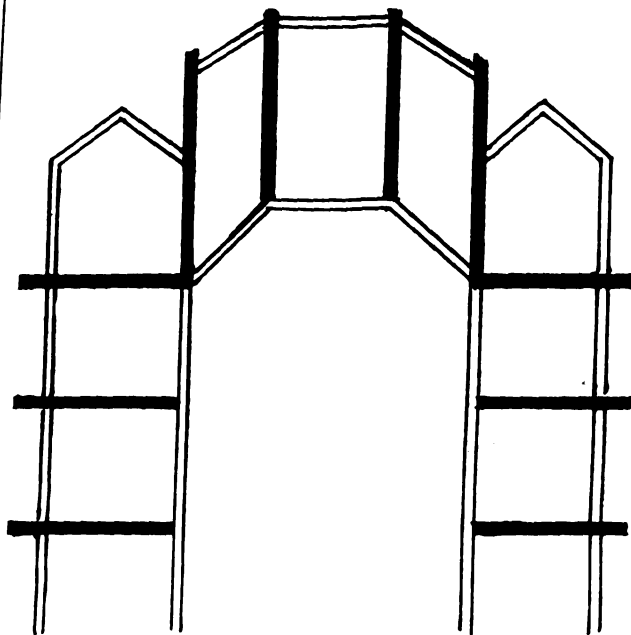
Not far away lies Ninove—an Abbey church, Renaissance, and the last remnant of a great monastery. It is skirted by the railway line at close quarters, and its vast interior is remarkable for its astonishing panelling up to the springing of the vaulting, and its huge organ case and

high altar, in keeping with the rest. The vaulting is plain to a degree. The interior is certainly one of the sights of Belgium.

Another very remarkable and beautifully proportioned large Renaissance church is that of Leuze, of great height and severe simplicity. It has immense apsed transepts with two rows of large windows.

The wide-aisled parish church of Thielt—almost a Halle-kirch—though fairly lofty, is impressive mainly by its great length. The central tower is octagonal, with a slated spire of striking height. The church is approached from the corner of the picturesque square, or Grand' Place, by a quaint little arched passage to the paved footway round the building, and the quiet seclusion of the position is enhanced by the presence of well-grown trees at intervals.

Wervicq's splendid Gothic church, built after the burning of the town by the French in 1382, has lofty transepts and a long nave, with apsed choir aisles and pinnacled flying buttresses and parapet. A curious feature of the choir is the arrangement of the buttresses, roughly thus in plan:—



The graceful spire was added a few years ago. Some Roman sculptures were discovered recently, as well as small carved groups in stone and polychromed. Beautiful woodwork is also in the south aisle. Some people say it is a still better-proportioned church than the impressive one of St. Martin at Courtrai, which merits a place of honour on the lengthy list. A curious feature is the three plain, empty niches pierced through the wall of the apse, and round the nave under the windows, instead of a triforium.

Poperinghe, a small straggling town, has a great surprise in store for the visitor in the shape of three large churches, especially the pilgrimage one of St. John, near the station, terribly treated interiorly in the Renaissance style in a very crude and clumsy fashion, but of wondrous external richness and beauty, and possessing a bold square lantern with Renaissance roof; and St. Bertin's, in the heart of the town, with fine west tower ornamented in its lower storeys with blind tracery. The choir has a noble apse and radiating chapels, but it is difficult to get a satisfactory view of the building, owing to the close proximity of mean little houses round the close, or parvis. The third church, Notre-Dame, has a graceful tower and spire, but it is difficult to find, being away from the main street, and at some distance from St. Bertin's. The three steeples are clearly seen above everything from the train, and form a remarkable picture. The town is conveniently near Ypres, where the great porch of the south transept has been—very stiffly—restored of late, and where the shallow north transept's window, a four-light lancet one under a segmental arch, has vanished under the new roof of the splendidly restored museum building which abuts on it.

It is stated that the Cathedral is shortly to have its spire. At present the new one of St. Jacques' Church there is the loftiest thing in the city. Three more churches, much of a size, are Liège (St. Jacques), Mons, and St. Walburge's, at Furnes, Mons being the more ornate and perhaps a little larger than the other two. It certainly appears so, owing to the ground rising from the



level of the Place de la Station, close to the apse, up to the west end, the great choir dominating the open space below. Only a few feet of nave-aisle walls at St. Walbuge's are above ground, as well as the great arch of the intended west porch, but as signs of weakness appeared here and there at the western end of the intended nave, it has been barricaded all round up to the present west wall flush with the west sides of the transepts.

The example at Dixmude is narrow compared to its length and height; but it is a noble edifice all the same, the choir being apsed, but the choir aisles being gabled at their respective east ends.

A village church near Eecloo, mainly Renaissance, with central octagonal tower and spire of much earlier date, and with thirteenth-century arcading (three arches on the south and four on the north) at the top of the transept gables, and a rudely cusped shallow trilobed doorway in the north transept, and the sacred edifice of astonishing height and beautiful proportions—the nave being of nine bays—deserves special mention. It is Bassevelde, and is at only a few minutes from the station, on one side of a fairly large square, so that one can get a good view of it practically all round.

The strange medley of St. Walbuge's at Audenaerde, as seen from the Grand' Place, appeals by its vast transepts and gigantic steeple and splendid nave—of late fourteenth century—built on to a small late Norman or early Gothic apsed choir and choir aisles. The turrets at each end of the transepts are elegant examples of staircase ones, and of course are of great height. The transepts appear as a great screen of stone between the spectator and the ornate Belgian edition of "Boston Stump," and recall the almost similar arrangement at Abbeville. The Scheldt passes at a few feet from the foot of the enormous steeple.

Soignies' Norman church of St. Vincent is noteworthy for the length and height of the nave, there being fourteen windows between the curiously finished west tower and the plain square mass at the junction of nave and short, rather lower choir; there is a north transept only, and the central tower has a pleasing spire with sharply defined angles coming in the middle of its sloping, square base; the corners have small, spire-crowned turrets of a very German aspect; both spires have an insertion, as it were, near their summits.

Nearly the size of the Sablon Church at Brussels is Notre-Dame de Bonne Espérance, at Vilvorde, about halfway between Brussels (Nord) and Mechlin. It has a rich fourteenth-century choir with long four-light windows to within 12 feet from the street level, and an ornate and lofty, though short, choir aisle with apsidal end. The south transept is plainer and lofty, its corner buttresses finishing off in pinnacles. There are no side windows to the nave, the lean-to roofs of the aisles preventing it.

The roofing of the staircase turret on to the face of the side (and central) tower is peculiar. The stalls in the choir are exquisite Renaissance work, with statues and busts, and twisted colonettes supporting small arches, the frieze above having foliage, with heads and bosses at intervals.

But the gem of Belgium—the outstanding one of all the giants—is the astonishing Collégiale at Huy, midway between Liège and Namur. It stands close to the river-side, at the foot of the huge rocky hill that bears the Citadel. One can approach it, on the north side, from the bridge end of the town, but those who alight at Huy Sud Station must descend the narrow street until the beautiful Bethlehem Porch is reached, which leads into a narrow walk alongside the lofty nave aisle, and the entry into the church is at the western end of the aisle. The "Rondia," or Rose Window, on the lower portion of the spireless west tower, prevents the placing of a west porch there. The scale of the aisles, with their huge traceried windows of grey stonework, is enormous, for one cannot see the nave from the passage alongside, yet the nave towers at least as high again above them. Two slender pinnacle-crowned Gothic towers flank the choir apse.

But one cannot judge this great church from the outside, as it is disadvantageously placed. One must enter by the western door of either aisle, and get as far west as possible, whence the immensity is apparent, the blending of the beautifully proportioned grey columns and moulded arches, the dull white of the walls, the elegant foliage and flower painting of the late fifteenth century in every panel of the rich vaulting, the great masses of tracery in grey stone in the windows (and below them in many of the bays, regardless of the Romanesque arcading already there), and the overwhelming choir, with its apse lighted by three two-light windows of about 90 feet in length—all will go to make an indelible impression on the memory of the spectator. It is impossible to grasp it all in a few minutes; the church is one to linger in—to seat oneself in at the west end and gaze and ponder and revel in undisturbed, and to visit again and again.

It is clearly a "sermon in stone," more potent than that preached by any of the other big churches we have dealt with in this article, huge as some of them are.

Possibly the foregoing lines and impressions may induce some architects and antiquaries to plan a journey to Belgium for next year to see for themselves some of the less well-known examples we have described—not forgetting, we are certain, a visit to the Collégiale at Huy, which they would never regret.

LONDON MASTER BUILDERS ASSOCIATION.

THE first ordinary meeting of the Council after the summer vacation was held at the offices of the Association on Thursday, September 18, the President, Mr. Walter Lawrence, jun., being in the chair, and there was a large attendance of members.

Important business which had come before numerous special Council meetings and committees during the interval was reported and considered.

The position in respect to the strike of painters was stated to be unaltered since the commencement of the month, when all the members of the Association were notified of the grant of $\frac{1}{2}d.$ per hour increase upon existing rates in accordance with a resolution of the Council on May 15 last, earlier announcement of which had been delayed on account of negotiations which were proceeding with the London Association of Master Decorators. From reports received members of the Association are experiencing very little difficulty in getting all demands supplied.

New rules with the plumbers' societies have been agreed.

The United Builders Labourers' Union have been met in conference, and a code of rules with that society, which claims to consist of men engaged only in the building trade, has been offered, and upon the acceptance the matter will be submitted to the members of the Association in general meeting at the earliest opportunity.

The reports of the Finance and Special Rules Committees and proceedings of Conciliation Boards were received and adopted. The award of the Board of Trade Conciliator re the Plasterers has been already reported.

Correspondence in reference to trade matters, &c., was considered and instructions given.

UNIVERSITY OF LONDON EXTENSION. LECTURES ON GREEK ART AND "THE NATURE OF BEAUTY."

MR. S. C. KAINES SMITH, M.A. (Cantab.), is to give a course of lectures on Tuesdays, at 4.30, on "Greek Art and National Life," at the British Museum. He will trace the evolution of Greek art from the intercourse of the Ægean civilisation with Egypt in the days of King Minos to that most glorious period ever known in Art, when Greece was at the height of her greatness and the gods had still a meaning for her people.

The aim of these lectures is to show the close bond that exists between the artist and his times, and to bring out the fact that no artistic development is without its social, national, or racial counterpart.

Special demonstrations will be held in the Museum galleries, apart from the lectures which are illustrated by the lantern. At the Victoria and Albert Museum the title of the lectures is "The Nature of Beauty."

It is impossible to lay down a hard and fast rule as to what is and what is not beautiful; but it is possible to discover the qualities whose presence makes for beauty in nature and in art; and in these lectures an attempt will be made to follow the process by which the mind receives the impression of beauty from objects sometimes apparently lacking in its outward manifestation.

As art becomes more sophisticated and eclectic, these principles become more difficult of analysis, and consequently the art of ancient and mediæval times offers the best material for our study in this connection. Taking the ancient Greek culture as a basis, an attempt will be made to trace in the art of subsequent periods the constant recurrence of certain canons either originated or elaborated in classical times. Where no historical continuity of development can be traced, the social and political conditions operating to produce certain ideas of beauty will be considered and compared. The effects of certain definite historical events, such as the fall of Constantinople, will be given especial attention, and the Renaissance will be the subject of study with particular reference to its relation to the mediæval atmosphere from which it emerged.

The objects displayed in the Victoria and Albert Museum will afford a wide field for illustration of the lectures, and from this source a very large number of examples will be taken.

As a subsidiary branch of the work an attempt will be made to establish a system of correspondence between ideals of form in art and literature.

Such a course should indeed prove most interesting. Particulars may be had from the Hon. Secretary, Miss Claire Gaudet, 120 Cheyne Walk, Chelsea.

BEAUX-ARTS ATELIER.

THERE has been no break in the continuity of the Atelier work since its opening last February, and it was thought that it would be interesting to mark the approach of the winter session with an exhibition of some of the work done by the Atelier members and students during the past few months.

An informal gathering was held on Wednesday evening last at the Atelier, among those present being the Right Hon. Lord Saye and Sele and Messrs. H. V. Lanchester, F.R.I.B.A., A. R. Jemmett, F.R.I.B.A., Arthur Davis, J. P. Chaires, R. Goulburn Lovell, A.R.I.B.A. (Honorary Secretary), Percy B. Tubbs, F.R.I.B.A., F. E. Billerey, Leslie Wilkinson, A.R.I.B.A., J. S. Gibson, F.R.I.B.A., C. E. Mallows, F.R.I.B.A., Harold Sanders, and many others.

The drawings on view comprised those executed for the twelve hours Esquisse Esquisse, the subject being "The Pedestal of a Bronze Equestrian Statue," and for the projects "A Town Residence for a Wealthy Art Collector" and "The Principal Elevation in a Court Yard of a Royal Palace," the latter sets including the rough Esquisses and the finished Rendus. There was also a large number of water-colour holiday sketches of architectural subjects in competition for prizes to the total value of £10.

The patron, Mr. Arthur Davis, gave a most interesting and instructive criticism of the architectural designs, explaining the reasons in detail which led the jury to make the various awards.

He was followed by Mr. Lanchester, who dealt with the water-colour sketches, bringing out the salient points to be observed or avoided in an exceedingly useful manner.

The awards of the jury were as follows:—

The Pedestal of a Bronze Equestrian Statue.—Mention: L. Sylvester Sullivan, A.R.I.B.A.

The Principal Elevation in a Court Yard of a Royal Palace.—Mention: L. E. Carreras.

A Town Residence for a Wealthy Art Collector.—First place: W. C. W. Tirrell and L. H. Bucknell, A.R.I.B.A.

Holiday Sketches (cash prizes).—W. J. Newton, M.A., A.R.I.B.A. (£4), L. H. Bucknell, A.R.I.B.A. (£3), Wilfred Hoyle, A.R.I.B.A. (£2), Bryan Watson, A.R.I.B.A. (£1).

Besides the competition drawings, there were a number of water-colours, not necessarily architectural subjects, sent for exhibition purposes by members of the Atelier, including a number sent by one of the Atelier's members in Paris, Mr. H. Bartle Cox, A.R.I.B.A.

The meeting served the useful purpose of demonstrating in a practical manner the methods adopted in the Atelier, both in regard to the way in which the students' work is gradually developed, and also the basis upon which the jury's awards are made. Everything points to a further development and extension of the work inaugurated by the Beaux-Arts Committee.

NOTES ON BOOKS.

"The Arbitration Clause in Engineering and Building Contracts." By E. J. Rimmer, A.M.Inst.C.E., &c. (London: Constable & Co., Ltd. 2s. net.)

THAT there are curiosities with respect to the arbitration clause in contracts cannot well be denied by architects who regard matters with an unbiassed mind. For there is a Gilbertian touch about permitting a man to arbitrate where he is himself one of those responsible for giving rise to the necessity for arbitration. And yet, despite that broad splash of seeming absurdity in the customary arrangement, its advantages are sufficiently obvious, and in a majority of cases the position of architect as a quasi-arbitrator has not only not been abused, but has justified itself.

In a twenty-page pamphlet Mr. Rimmer discusses the effect of certain legal cases upon the usual arbitration clause and their practical modification of Lord Bowen's judgment in *Jackson v. Barry Railway Company*. These effects are summarised near the commencement of the pamphlet; and after a brief review of the older and the more recent cases Mr. Rimmer draws the conclusion that "the arbitration clause is by no means unassailable," and he puts forward the modifications which he deems to be necessary in the interests of the building owner.

"Wanted: a Ministry of Fine Arts." By Wynford Dewhurst. (London: Hugh Rees, Ltd. 1s. net.)

It is but seldom that the truth lies altogether on one side of a disputable matter; indeed, the very fact of a matter being disputable would seem to connote this. And we are not of opinion that Mr. Dewhurst's perfervid utterances (which first appeared in the pages of the *Art Chronicle*) will gain all the converts whom he might desire; exaggerated statements never yet obtained worthy recruits. Upon what basis of common sense or artistic feeling can the writer acclaim the Admiralty Arch as an "abortion"? or Buckingham Palace (poor as it is) as an "inky, warehouselike structure"? Nor are we all likely to be convinced of the resultant beauty where in any street "the houses . . . conform one to the other in style and height"; are, then, the Regent's Park terraces and the Bloomsbury by-streets such things of beauty? We are informed that "unique works of art are exported *en masse*"; we doubt as to *en masse*; but even if granted, what about the plethora of unique works of art which we have obtained from abroad? Are we not all members of a world-brotherhood? "Possession of art means health, contentment, a happy mind in sound body, fine stature, beauty of countenance, glory and *much profit*." Oh! the nonsense of it, and oh! the bathos of what we have italicised; a bathos repeated later on page 31, where our profit in kudos and shekels is foreshadowed. But it is impossible here to catalogue all the exaggerations and misconceptions of fact introduced by Mr. Dewhurst. Let us, however, animadvert upon the statements (pages 30 and 31) as to the official ignoring of the artist; he is by no means ignored at public functions, nor is he non-existent, nor is his influence nil; was it such a low-class title that Leighton received, or were the decorations conferred upon Watts, Richmond, Herkomer, Alma-Tadema, and others so insignificant?

When Mr. Dewhurst, however, descends to documental facts and records he is on more secure ground, and his pages dealing with how they do things in France make interesting reading; but even then he is uneasy, for after many such pages we find introduced the following prophetic utterances in regard to doomed Great Britain. "As things stand, the time is easily calculable when the land will be reduced to the aspect of a smouldering cinder-heap, its amenities and treasures entirely effaced or maimed out of all recognition; we are quite sure that that is meant for embroidery, and is not seriously regarded even by the writer. And what does he mean by 108 London open spaces being in future "preserved inviolate to the ubiquitous billposters"? We suppose he means *against* not *to*; but then what a pity it is not to express his meaning, and in simpler language!

"I wondered what impression of our modern British artists the casual stranger would carry away if he were informed that the Tate Gallery, home of the Chantry (*sic*) Bequest purchases, held the quintessence of their effort, since to me it seemed to be much more remarkable for its omissions than for its commissions, and amongst other items—why, oh! why?—three large space-devouring W. H. B. Davies's, R.A.!" Yes; but why, oh! why, not spell the sculptor's and the artist's names correctly? and why, oh! why, talk of commissions when the Chantry Trustees do not give commissions, but purchase exhibited works? And in a National Gallery of British Art it would be obviously inappropriate to house "examples of the schools of all nations."

"The Land Transfer Scandal." By J. S. Rubinstein. Third edition. (London: Sweet & Maxwell, Ltd. 2s. 6d.)

Architects and surveyors, in common with solicitors, feel very acutely upon the subject dealt with so ably by Mr. Rubinstein in his pamphlet, which reproduces a paper read by him at Nottingham in 1911 before the Law Society. The welter in which land transactions have been plunged now for some years has proved a disaster to too many professional men; and what the end will be is on the knees of the gods. Bureaucracy is unfortunately rampant, and we can but pray for a retroversion of the hands of the clock.

If scathing criticism can effect any good, then this pamphlet on the Land Transfer Scandal should prove curative to a degree, if not entirely. But when we note the recent huge extension of the Land Registry Offices in Lincoln's Inn Fields, what hope is there left of any such immediate cure? Nor is it without dismay that we anticipate the legislation of the coming Parliamentary session. But we wish all power to Mr. Rubinstein's elbow, and must express our cordial approval of the timely republication of his pamphlet.

"Structural Drafting." By F. O. Dufour, C.E. (Chicago: Amer. School of Correspondence. Sold in England by Crosby Lockwood & Son. 4s. 6d. net.)

MR. DUFOUR's manual on structural drafting bespeaks a writer of wide experience of his subject: it is eminently a work for the engineering trade, not for the architect's office, and it carries with it such a convincing air of practical knowledge that any demurring criticisms must necessarily be of the slightest. And yet some of these criticisms may be advantageously offered; the recommendation of the architect's ten collected scales is to be deprecated, the best instrument being undoubtedly that which has only four scales in all, each one reading from both ends (with arrow-heads pointing in the direction of reading as an advisable feature for introduction), but at the outside the number of scales on one instrument should be eight.

Again, we regard the instructions on lettering as too diffuse, and in some cases as actually absurd; clear lettering and figures are highly desirable, but many of the diagrams fail lamentably in providing easily deciphered dimensions; if they were less monotonously even, various of the digits might stand out more clearly. On page 97, in the paragraph on webs, the addition on one line and the difference expressed on the next are wrong, and there is an obvious error in fig. 74. On page 102 the value of n should be stated as given approximately. And though we might criticise here and there elsewhere, yet we fully recognise the care and labour devoted to the book, and echo the publishers' hope "that the work will be of service to a wide circle of students and general readers."

ECCLESIASTICAL ARCHITECTURE IN CENTRAL ITALY.

By T. FRANCIS BUMPUS.

Author of "The Cathedrals and Churches of Northern Italy," "The Cathedrals of England and Wales," "London Churches, Ancient and Modern," "The Cathedrals of Northern France," &c.

V.—SOME CHURCHES IN THE NEIGHBOURHOOD OF GENOA: AT PISA, FLORENCE, ORVIETO, AND VITERBO.

(Continued from last week.)

SAN FREDIANO, founded in 1007, is perhaps really of the eleventh century, although probably half a century in construction, and, if so, is in advance of England or of the North of France at that period. The west front is good, but simple and plain, and it has four round holes, two over the west window and in the gable of that end, and one in the sloping lean-to roof of the aisle on either side, probably to give air to the timbers, a wise precaution often neglected in England; but the small, round holes do occur in English churches of the eleventh century. There is here the shallow external panelling, resembling arches built in, which is a good Italian feature not often met with elsewhere.

There are three doorways. The central one has a beautifully moulded lintel, while the side ones have plain tympana to their semicircular heads. Above are three shallow arcades, of which the central one is pierced with a two-light window, having the dividing shaft circular, with a flowered capital. In the gable are two of the small round openings above alluded to. Adjacent to this church is a charming little gabled bell-cote pierced for two bells, and surmounted by an iron cross. There is another such belfry a little to the north of Sant'Antonio, a church near the railway station, but of no particular interest.

Externally, the clerestory of San Frediano is composed of a series of arches on pilasters, but the old window openings have been blocked, and modern Italian ones inserted at intervals. There is a plain north-eastern campanile, partly of stone and partly of red brick.

The interior of San Frediano, with the exception of the columns and arches dividing the nave from its aisles, has been modernised. The columns, of unpolished marble, have leafage of the acanthus type in the bells of their capitals, circular plinths, and low square bases. The arches, eight on either side, are round, and altogether the interior in its ensemble recalls that of Sta Agnese at Ravenna.

In the same neighbourhood is San Nicola, which, although hopelessly modernised as regards its side and eastern walls and its interior, has contrived to retain its original façade pretty well. Four of the arcades in the ground storey remain, two wholly and two in part, the remainder having been remorselessly cut into by a modern doorway. Above this the façade is modern and totally uninteresting, but flanking it on the north side is a beautiful multangular tower.* The first two stages are very tall, the second one having shallow round arches on angular shafts—one to each side. Then comes a graceful arcade of two openings to each of the sides visible from the street, grouped around a plain cylindrical core. This stage of the elevation is followed by an octagonal turret, set anglewise with relation to the rest of the tower, having a round-headed opening on each side, three shaftless arcades over them in the form of corbelling, and a low spire with each of its ribs profusely crocketed. Within the arches of the tall second stage those lozenge-shaped and circular ornaments peculiar to Pisan and Luccese Romanesque are introduced with pleasing effect. Unfortunately, this charming campanile has been so cut into by secular tenements that it is impossible to gain a good idea of its proper shape and dimensions.

A church well worth a visit is that of San Pierino. The interior, to which there is an ascent of twelve steps from the threshold of the western door, is most impressive. The nave has five bays of stilted but round-headed arches of white stone, banded with black. The capitals of the columns display a variety of foliated ornament, in which the Corinthian acanthus prevails. The choir has three bays of the same character, separated from the nave by attached piers with carved capitals, but supporting nothing. The responds or half piers at the extremities of the nave arcade are flat, with

* This church was founded about A.D. 1000 by Hugh Marquess of Tuscany, together with six other Benedictine abbays. The campanile, attributed to Nicola Pisano, leans slightly to the north. Internally this campanile has a cleverly contrived staircase, winding, and supported by marble columns and arches. Vasari states that it afforded the model for that of the Belvedere at the Vatican, by Bramante.

ITECTURE IN
ALY.

ARPA.

ches of Northern Italy
ee," "London Chronicle
of Northern France," &cNEIGHBOURHOOD
RENCE, ORTIZ.

ceek.)

perhaps really of a
half a century in
of England or of aest front is good
of India, two or
and, and one orher side, probably
ation often regre
do occur in Eng
is here the sidebuilt in, which
elsewhere.al one has a bar
have plain type
are fine anded with a wall
lar, with a few
all round thech is a fine
ls, and some
y being a fine

the railway

dians is
all was
than was
stemsage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
thesage
s are
of the
the

carved capitals. There is no triforium, but a clerestory lighted on either side by two round-headed windows, and a Cinque Cento vault, a poor substitute for what must have been the original roof—viz. a gabled one of wood with tie beams.

Two very noteworthy features of San Pierino are the gradual slope of the floor from east to west, and the manner in which the arcade on the north side of the choir is placed a little in advance of that of the nave. The high altar between the second and third bays of the choir is Renaissance and joined to the wall on either side by doors admitting to the space behind, which is square-ended, but painted so as to look as if it were apsidal, and furnished with nine plain Renaissance stalls. On the western side of a pillar at the entrance to the chancel a painting, in very perfect condition, represents a figure holding a book.

The façade has five shallow arcades on square shafts in its ground storey and three above. In the centre of the latter is a two-light window similar to that at San Frediano. On the north side is a row of shallow arcades in continuation of those at the west end, and below these a series of lancet windows give light to a crypt. At the north-east angle is a picturesque tower, longer from east to west than from north to south, and terminating in a gable. The western side of the tower has a window with a bell hanging in it, and there is a similar aperture placed eccentrically on the northern one.

Sta Agata is attributed to A.D. 1063. It is a singular structure, a small octagonal chapel, with an acute pyramidal roof. The windows, one on each side, are of two lights, with slender shafts; over each is one of the small circular openings noticed in the façade of San Frediano. The walls are built of brick, after the Roman fashion, but not of Roman bricks. The mouldings and the capitals agree with the latter part of the eleventh century.

San Sepolcro, close to the river on the south-eastern side of the city, is one of the churches built in imitation of the Church of the Holy Sepulchre at Jerusalem by Crusaders after their return. They were generally built by the order of the Knights Templars, and were for the most part erected after 1187. This is an octagonal building with a small central space and wide aisle round it, and a conical roof over the central part; the aisles have nearly flat roofs. There is a good Romanesque campanile of light character, detached from the north side, but almost touching the church; and in the lower part of the wall an inscription gives the name of Deodatus Salvi as the builder. The same name occurs in the wall of the Baptistery of the time of the foundation, 1153, in another original inscription. We may, therefore, safely assign this Church of the Sepulchre to the latter half of the twelfth century. It has acutely pointed arches, of transitional character, and all the details agree with this. The piers dividing the octagon from its circumambient aisle are irregular cruciform masses, with rectangular projecting members on each side. The capitals are banded with a cornice-like moulding, but the bases, if memory serves aright, are hidden. The arches are of two orders, slightly pointed but very simple. The dome is octagonal, with a simple round-headed window in each face, and is capped externally with a rather tall spire covered with tiles. Each side of the octagonal aisle has two small round-headed windows placed high up in the wall. This aisle is vaulted. The altar stands under one of the arches of the middle octagon between two of the piers. In the aisle, on the epistle side of the altar, is a well, with a low circular wall round its mouth. Externally, the aisle seems to be almost flat-topped, so slight is the slope of the lean-to.

This curious church, built for the Knights Templars, deserves careful study, the appearance of pointed arches at the date of its erection being most remarkable, particularly since the round arch was so tenaciously clung to by the Pisani in their pointed buildings.

The often illustrated church of San Miniato at Florence stands to the south of the Arno, on an eminence without the walls. This church and the surrounding cemetery does duty as the Campo Santo of Florence, and accordingly the hand of the restorer has been busy in the interior, which in 1860 was painted with imitation black and white marble placage. However, this is not the first time that the church has suffered from restoration; for the half gables at the west end of the aisles and parts of the west front over the centre door display a reticulated pattern which ill accords with the historiated great western gable. But with these exceptions the west front is particularly deserving of study, and shows a very early example of the black and white marble placage, which subsequently became so fashionable;



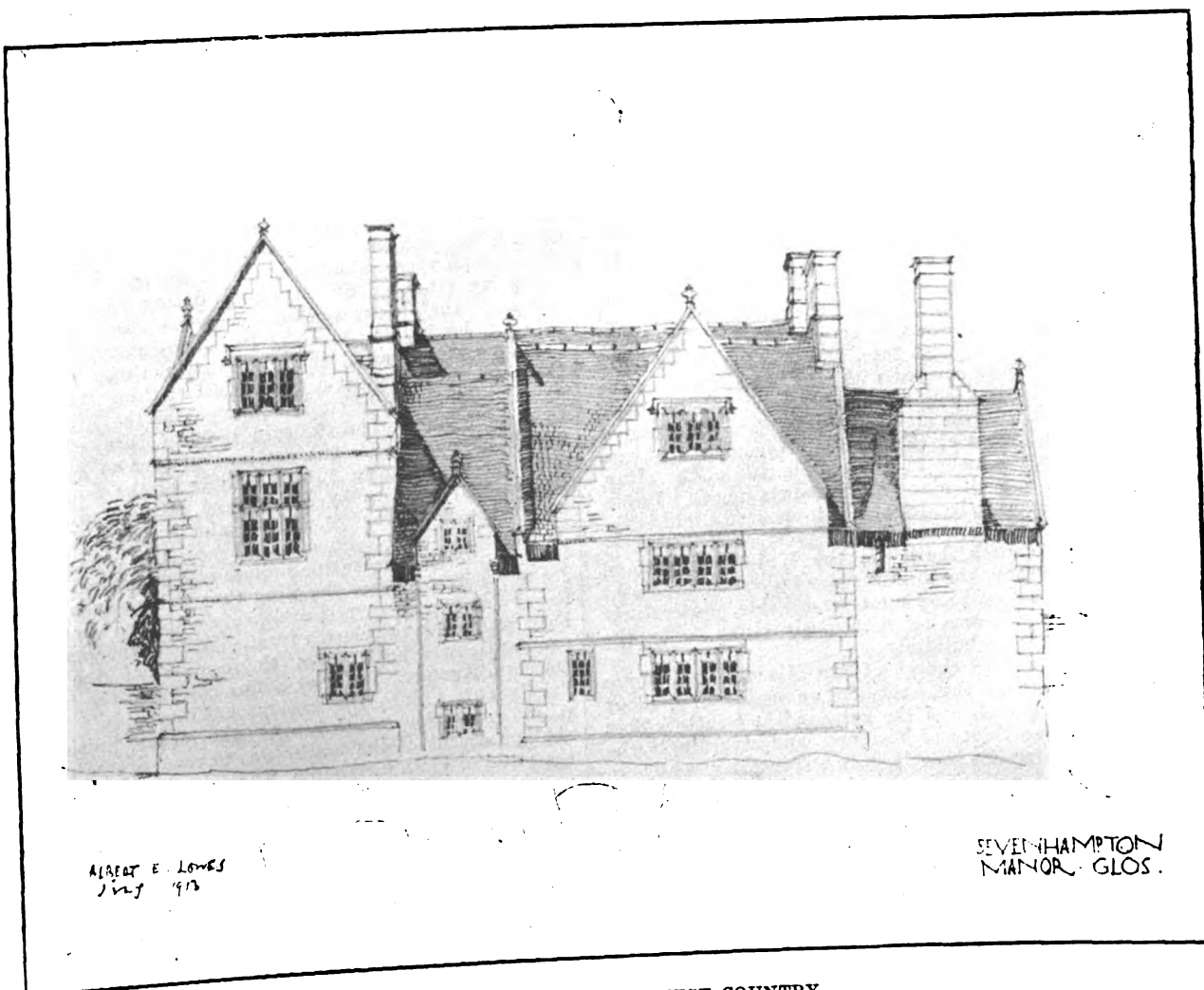
so much so, indeed, that in after times whole exteriors of churches were roughly built of brick, with a view to their being afterwards cased with marble in this manner; and the marble casing having never been applied, or perhaps very partially, we now see structures such as the west fronts of the cathedral at Perugia, San Petronio at Bologna, San Francesco at Arezzo, and San Lorenzo at Florence, to take but a few examples, whose rough-built exteriors are neither pleasing nor artistic in their unfinished condition.

As a perfect example of a peculiar kind of church San Miniato is one of the most interesting in Florence. The saint whose dedication it bears was martyred with others on that very spot in the Decian persecution about A.D. 250; and though there is another church in the city of remoter antiquity (that of SS. Apostoli, dating from the ninth century), that latter one has become comparatively insignificant, having lost much of its olden claims.

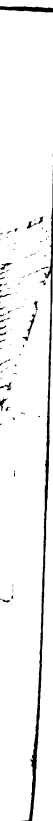
The oratory raised in primitive times over the scene of the martyrdom amidst a forest then clothing the mountain gave place, so early (it is supposed) as the fifth century, to a more ample church, said to have been endowed by Charlemagne in 774, but destined in turn to give way to a nobler successor in 1013, the date of the foundation of the present basilica by Hildebrand, Bishop of Florence,* under the Emperor St. Henry and his wife Cunegunda. Beside this edifice soon rose a Benedictine monastery, and in 1294 another Florentine prelate either restored or rebuilt for his own residence the wing that still extends its broad, heavy front, with turrets and acutely-pointed windows (now built up) beside the church front. In 1519 the quadrangular campanile was built from the designs of the architect Baccio d'Agnolo. It forms a fine object on the height, but hardly enters into the ancient basilica plan. At some period in the fourteenth century the façade, finished during the last decade of the tenth, was to some degree restored by the guild of cloth merchants, whose device, an eagle standing on a wool-pack, now surmounts its gable-summit; and in 1387 the vaulted sacristy, adorned with an interesting series of frescoes depicting incidents in the life of St. Benedict, was added.

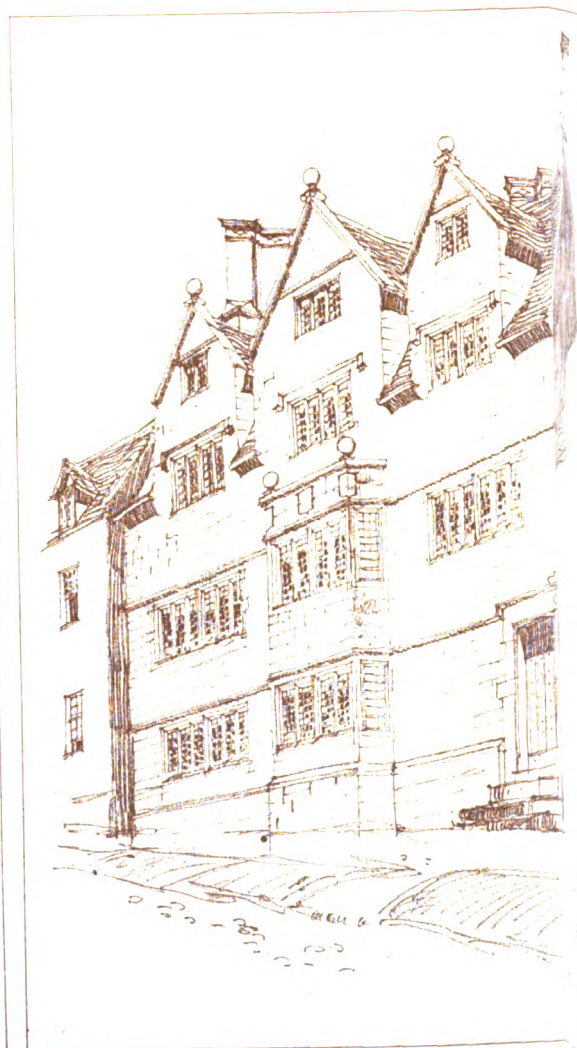
San Miniato has passed through all possible vicissitudes—being an important strategic point it was attacked and defended in the memorable siege of Florence, 1529, when

* "Hildebrandus . . . basilicam restauravit ac magnifice exornavit." It is known to have been finished in 1062.



SKETCHES IN THE WEST COUNTRY.







GLOUCESTER ST. WINCHCOMBE.



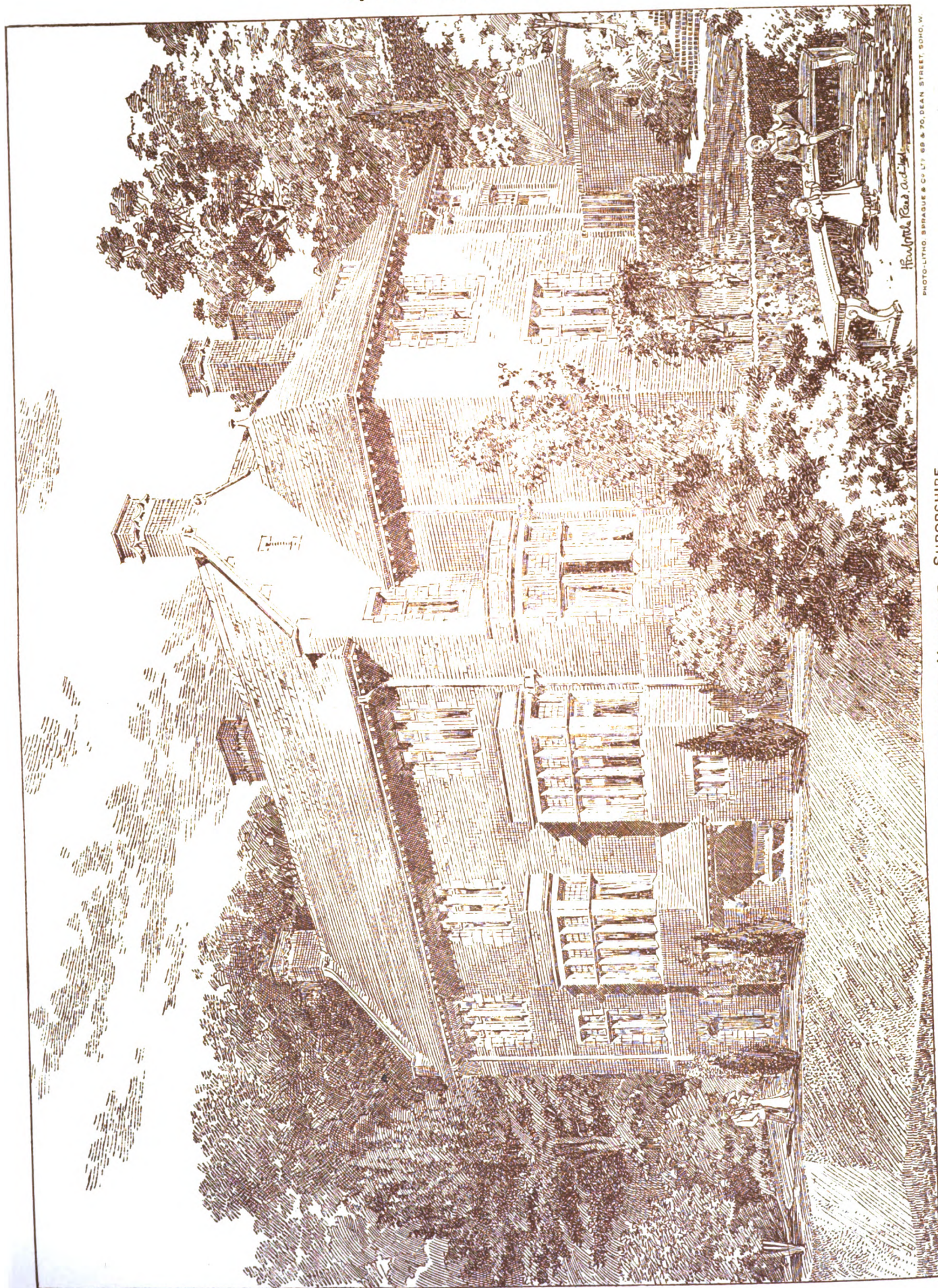
TWOOR
HOUSE

ROADWAY,
WORCESTER
July 1913
A. E. LOMES

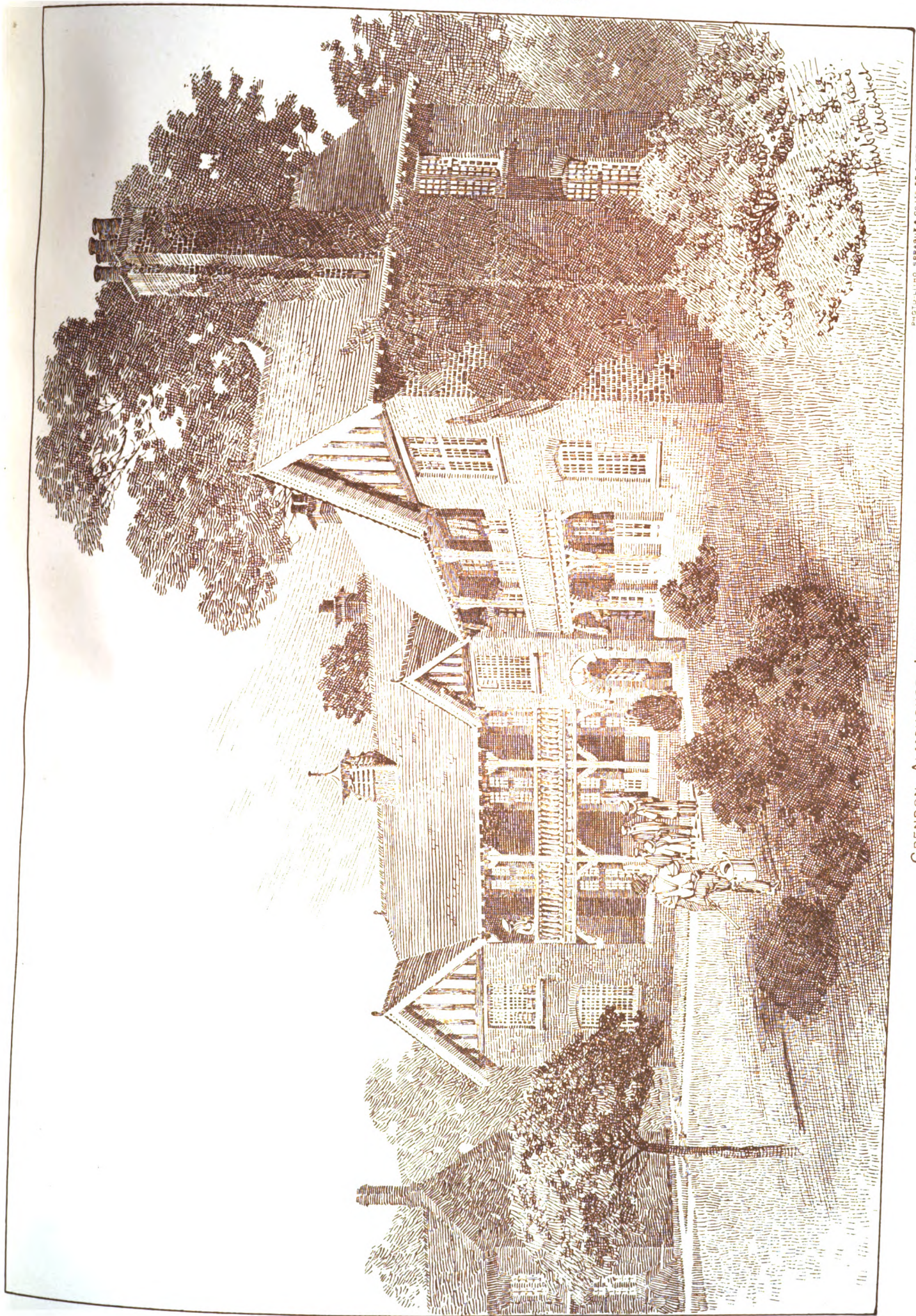


THE BOOTH HALL
EVEESHAM WORC.

"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.



COALBROOKDALE VICARAGE, SHROPSHIRE.
MR. HARBOTTLE REED, F.R.I.B.A., Architect.



GRENDON ALMSHOUSE INFIRMARY EXETER.
MR. HARBOTTLE REED F.R.I.B.A. Architect

PHOTO LIND SPRAGUE & CO. LTD. 68 & 70, DEAN STREET, BOMBAY, W.

Handwritten note:
The building was
designed by
Mr. Harbottle Reed
F.R.I.B.A.

THE
CARDIFF
COAL
SHIP
EXCHANGE

CARTOUCHE
COLUMNS

By Mr. T.

ARCHITECT—
MR. EDWIN



THE COLLIERY INDUSTRY.



THE "WELSH DRAGON" CLOCK.



THE CARDIFF COAL AND

THE CARDIFF COAL AND SHIPPING EXCHANGE

CARTOUCHES ON MAIN
COLUMNS OF GALLERY,

By Mr. T. A. JONES,
SCULPTOR.

CHITECT—

Mr. EDWIN SEWARD,
F.R.I.B.A.



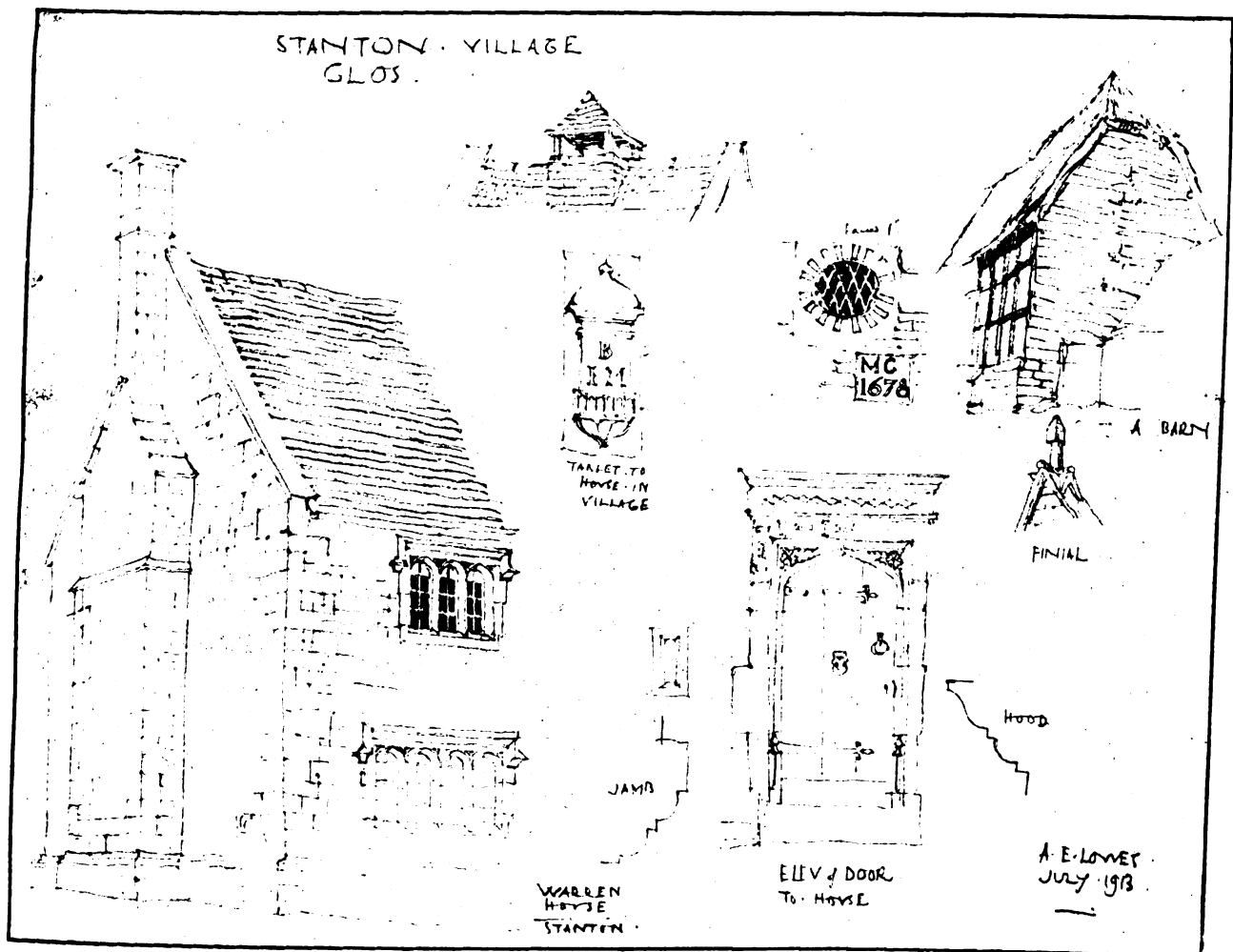
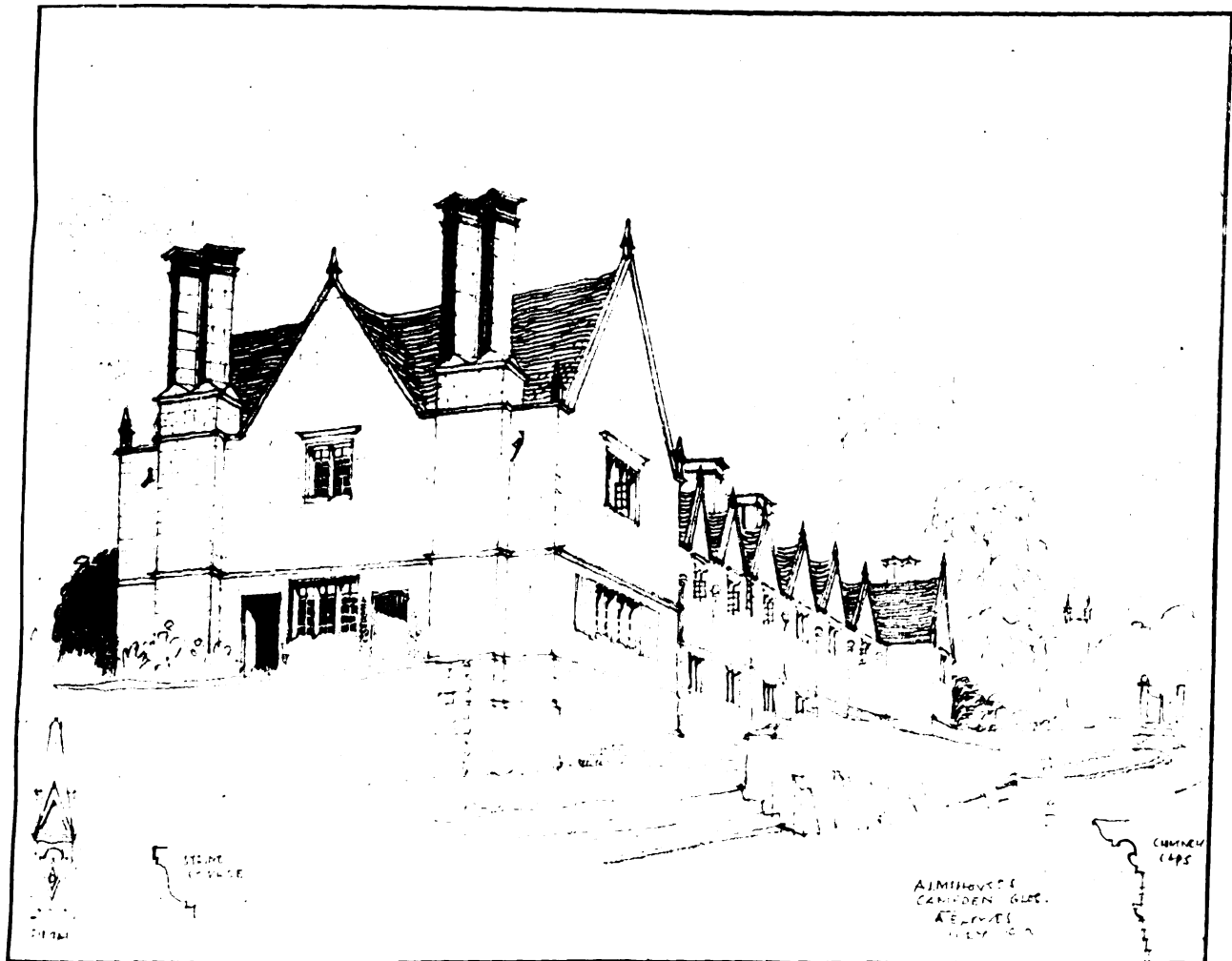
THE MARITIME INDUSTRY.



COAL AND SHIPPING EXCHANGE.



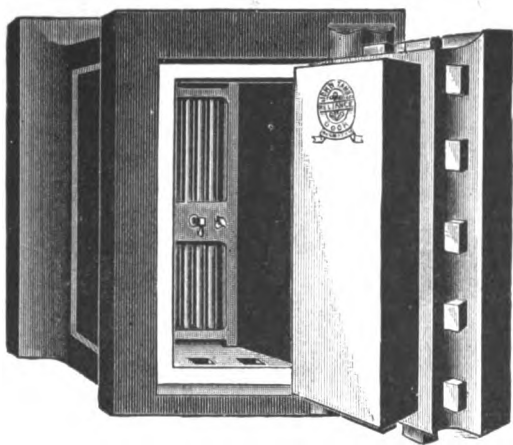
LIGHTING STANDARDS, End of Upper Gallery.



SKETCHES IN THE WEST COUNTRY.

ESTABLISHED 1795
FOR SECURITY AND VALUE
ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS
THE GREATEST SECURITY
FOR ANY GIVEN EXPENDITURE, BACKED UP BY
THE HIGHEST RECORD—
118 Years without a single failure against
either FIRE or BURGLARS.

Catalogues and Estimates from **JOHN TANN, Ltd.**
117 NEWGATE ST., LONDON.

200 Guinea Cup and 3 Gold Medals
WON AT ROSSLARE SPEED TRIALS

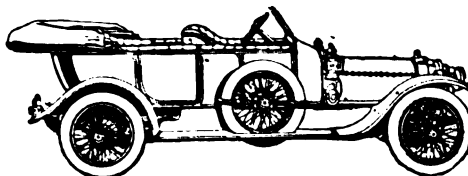
INVINCIBLE TALBOT

FIRST in all THREE OPEN EVENTS.
FIRST in Event C for Private Owners' Cars.
FASTEST TIME over the FLYING MILE.

118 Miles per hour on a Sand Course!

This is the THIRD time the DUNLOP 200 Guinea Cup has been won in open competition by Invincible TALBOT cars.

Over 40 Highest Awards have been won by the Invincible Talbot in Speed and Hill-climbing trials this season—proof of superior Power, the first essential of an efficient touring car.



Catalogue on request.

CLEMENT TALBOT, Ltd.,
Automobile Designers and Engineers,
Barlby Road, Ladbroke Grove, London, W.

PEN-YR-ORSEDD

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

SLATE QUARRY CO., Ltd.,
Supply Best and Seconds Red and Purple

SLATES

TO MERCHANTS AND THE TRADE.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "
F.O.R. Twickenham.	

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

the bastions that now stand in picturesque decay were raised on the plan of Michel Angelo, and that massive tower was battered by the besieging cannon, as still apparent in the broken stonework at the angles. In 1553 it was fortified anew by the Grand Duke Cosmo I., who assigned the monastery to Olivetan monks instead of Benedictines. In the seventeenth century it was converted first into a lazaretto and afterwards into an asylum for mendicants. In 1703 it was conceded to the Jesuits for religious exercises, and seventy years later to a lay confraternity for similar purposes; and finally it has become the public cemetery of Florence, both the church floor and the terrace ground adjacent being covered with tombstones and monuments and the altars appropriated to funeral rites alone. A low mass for the dead is the sole daily service, the observance of All Souls Day here being remarkably beautiful and impressive, and the only celebration that attracts many worshippers to this grand old basilica.

The several points most worthy of notice in the interior of San Miniato are the transverse arches, going across the nave and aisles, thus dividing the length into three compartments of three bays each, just as if it were going to be vaulted; the raised choir and the crypt below it; the incised marble pavement; the mosaic of the apse; the five medallions by Luca della Robbia, in the vaulting of a side chapel; and the stone panes of glass (to use an Irishism) in the windows of the apse. These windows, which are only less curious than those with stone shutters at Torcello, I examined with some minuteness, and can compare them to nothing but very translucent alabaster, parts of which are clouded with a brownish red colour, precisely like the alabaster we now use.* Of course, it is impossible to see through them, but, like those in the cathedral at Orvieto, they really do admit a considerable deal of light, and when the sun struck upon them looked exceedingly beautiful; they are also in large pieces, only one slab being employed for each window. It is difficult to conceive why such a material should ever have been used, as the art of glass-making was probably never lost since the time when the Pompeians used tolerably large pieces as thick as our plate-glass. It is, however, probable that they were taken from some pagan temple and inserted in the apse of San Miniato as rare and valuable objects. The curious stone windows at Torcello alluded to are quite different. These are massive stones, a foot thick, turning on pivots outside the window opening, and when shut would effectually conceal any light, although they would form a very efficient protection against hostile missiles.

(To be continued.)

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Amersham.—House for Mr. A. Heron.

Sub-station for Mr. H. Kennard; also

Chesham Bois.—House.

Chalfont.—Workshops, &c., for Nat. Soc. for Epileptics.

Chalfont Common.—House for Mr. D. Ryder; also

Chalfont St. Peter.—Cottage.

Four cottages for Mr. J. R. Betts.

House for Mr. H. Brown.

Penn.—Shop, Tyler's Green Common, for Mr. F. Perfect.

CHESHIRE.

Stockport.—Trades Hall, Daw Bank. Messrs. Swann & Stockton, architects, St. Peter's Chambers.

Wallasey.—Town Hall, Brighton Street. Messrs. Briggs, Wolstenholme & Thornely, F.F.R.I.B.A., architects, Royal Liver Buildings, Liverpool.

CORNWALL.

Carn Brea.—Building for the new mill and concentrating plant, Tincroft, for the Carn Brea and Tincroft Mines, Ltd.

* The east windows of San Miniato are in reality slabs of antique Pavonazzetto marble, with red, purple markings, nearly two inches thick. Almost any marble with crystalline statuary ground an inch thick, placed on the sunny side of a church in Italy, would admit sufficient light for worship, but would not do in our variable climate.

Downderry.—House and offices. Messrs. Carder & Carder, architects, 24 Lockyer Street, Plymouth.

Penryn.—St. Gluvias Church: vestry (Enys Memorial). CUMBERLAND.

Carlton.—Farm buildings, How Gill: re-erection for the Dean and Chapter of Carlisle.

Crosby-on-Eden.—Batt House: additional farm buildings for Mr. T. H. Hodgson (of Newby Grange).

DERBY.

Long Eaton.—Engine Room: extensions for U.D.C. (£2,750).

DEVON.

Deerport.—Fever hospital: pavilion for eighteen beds, laundry, &c., and administrative-block extensions.

Exeter.—Ivybank Dispensary: extension.

Torquay.—Theatre for Mr. J. M. Glover, of Drury Lane Theatre.

DORSET.

Shaftesbury.—Picture Palace, High Street, for Mr. Walford.

DURHAM.

Gateshead.—Secondary school extensions.

Seaham Harbour.—Forty-five working-class houses. Mr. W. Nicholson, contractor.

ESSEX.

Laindon Hills.—Tuberculosis Sanatorium and Hospital. Wooton's Farm site, for West Ham T.C.

Little Oakley.—Block of six workmen's dwellings for Tendring R.D.C.

Romford.—Workhouse: bakehouse (£1,500).

Sandon.—Tuberculosis Sanatorium (for 150 beds), Sporeham's Farm site, for the County Council.

Westcliff-on-Sea.—Congregational Church.

GLOUCESTERSHIRE.

Teekesbury.—Thirty workmen's dwellings for the T.C.

HAMPSHIRE.

Kimpton.—Schools: additions and alterations. Mr. B. D. Chancellor, architect, 12 Jewry Street, Winchester.

Southampton.—Isolation Hospital: pavilion (£1,850). Borough engineer. Mr. J. Nichol, contractor, Bitterne Park.

HERTFORDSHIRE.

Fleetville (St. Albans).—Council school, St. Peter Rural: additional accommodation for 150 infants.

KENT.

Sandwich.—Cottage homes for Easry Guardians. Messrs. Jennings & Gray, architects, 4 St. Margaret's Street, Canterbury.

LANCASHIRE.

Liverpool.—R.C. public elementary schools, Beacon Street (for 600 places) and Stanley Road and Boundary Street (for 800 places).

Oldham.—Council school, Heron Street, Hollinwood.

Rivington.—Bungalow: re-building for Sir W. Lever.

St. Anne's-on-the-Sea.—Imperial Hydrotel: wing for 150 to 200 visitors.

LEICESTERSHIRE.

Loughborough.—Fire engine station, caretaker's house, &c. Borough surveyor.

Lutterworth.—Eighteen working-class dwellings, Leicester Road (£2,700).

Markfield.—Twelve Council houses.

LINCOLNSHIRE.

Boston.—Picture and Variety Theatre, &c., Market Place (£7,000). Mr. W. Smith (Nottingham) and Mr. F. Parker, F.S.A. (7 Pump Square), joint architects.

NORFOLK.

Great Yarmouth.—Workhouse: nurses' home extension. Messrs. Olley & Haward, A.R.I.B.A., architects, 5 Queen Street.

NORTHUMBERLAND.

Berwick-on-Tweed.—Parochial Hall Buildings: completion (£1,500).

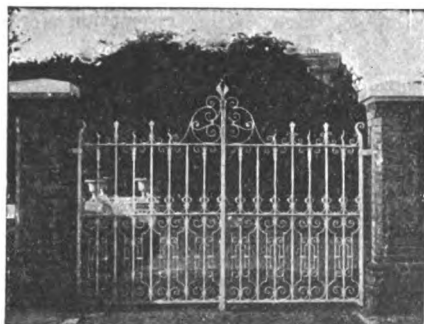
North Shields.—The Tyne Inn, Tennyson Terrace: alterations for Messrs. Robert Newton, Ltd., Newcastle.

NOTTINGHAMSHIRE.

Nottingham.—Shops, Carrington Street, for Mr. F. M. Ketton.

SHROPSHIRE.

Shrewsbury.—Picture house (£4,000). Messrs. Brown & Barrow, F.R.I.B.A., architects, Lennox House, Strand, London.



WITCHELL & CO.,

Specialists in
Wrought Iron and Art Metal Work,
55b LUDGATE HILL, LONDON, E.C.
(and Endwell Works, Brockley, S.E.)

THE British Traders' Association.

For the Protection of the Building and Hardware Trades.

Managers: **OORFIELD & ORIPWELL,**
119 Finsbury Pavement, LONDON, E.C.;
12 Cherry Street, BIRMINGHAM.

A subscription of £1 ls. per annum entitles the Member to 10 Status Reports, to the Collection of 10 Accounts in England and Wales. Free of Commission, and to any registered information on the books. Continuous Reports a Speciality. Weekly Gazette issued. Membership limited to Wholesale Firms.

**STATUS INQUIRIES, DEBT RECOVERY,
INVESTIGATIONS AND INSOLVENCY DEPARTMENTS.**

CHRISTIE PATENT STONE CO., LTD.

DRESSINGS, STAIRS, LANDINGS.

Works: Christie Rd., Stretford, Manchester.
Bournemouth Street, Hull.

RED CROSS Colourless Stone Solution

Cures DAMP and ARRESTS DECAY.

Price 6/- per gallon; same as used at the new building at the Royal Infirmary, Glasgow, &c.

Made by the

STANDARD CHEMICAL CO., 604 Duke St., GLASGOW.

Priest & Mullings, Ltd.

IRONWORK CONTRACTORS & CONSTRUCTIONAL ENGINEERS.

Manufacturers of Iron Fencing, Gates, Iron Doors, Staircases, Roof Work, Stanchions, Principals, &c.

BUILDERS' IRONWORK A SPECIALITY.

Prices right. Prompt deliveries.

AVONVALE IRONWORKS, Netham, BRISTOL.

London Office: Bank Chambers, Finsbury Park, N.

MARSHALL & CO.

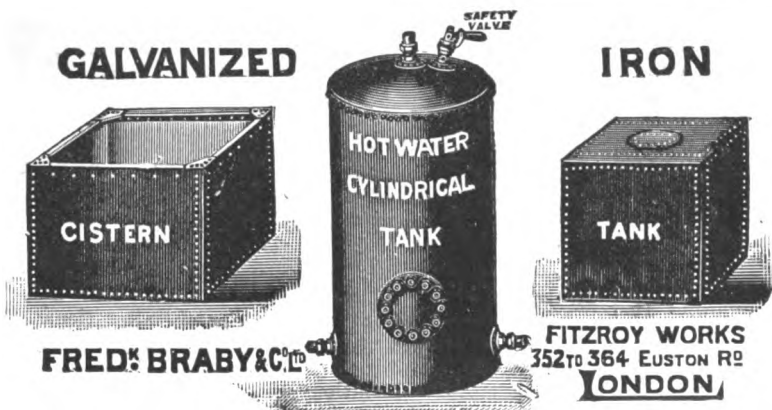
Architectural Modellers,

Fibrous Plaster & Carton Pierre Manufacturers,

SULGRAVE ROAD, HAMMERSMITH, LONDON, W.

Telephone No. 126 Hammersmith.

The original introducers of the Hot Water Cylindrical Tanks.



The original introducers of the Hot Water Cylindrical Tanks.

Illustrated Sheet, showing application of our Hot Water Cylindrical Tanks, sent on request.



Made in Four Shades of BROWN also in GREEN and RED.

Regd.
THE IDEAL WOOD-PRESERVATIVE AND ANTISEPTIC AS SPECIFIED BY ARCHITECTS.

Samples and Prices on Application.
Sole Manufacturer:—
J. E. C. LORD, Weaste, MANCHESTER.
Agents:—
THE COUNTRY GENTLEMEN'S ASSOCIATION, LIMITED,
Letchworth (Garden City), Herts.

DURES CO

THE KING OF WATER PAINTS.

The FIRST in the Field. The FOREMOST ever since

THE SILICATE PAINT CO.

Made and sold a Water Paint in 1875.

30 Years Experience has stamped

DURES CO

as being the premier Water Paint.

SOLE MANUFACTURERS—

THE SILICATE PAINT CO.,

J. B. ORR & CO., Ltd.,

CHARLTON, LONDON, S.E.

ENGLAND—continued.

SOMERSET.

Combe St. Nicholas.—Four workmen's cottages.

STAFFORDSHIRE.

Wolverhampton.—R.C. school for 450 places.

SUFFOLK.

Lowestoft.—Sanatorium: extension. Borough surveyor.

SURREY.

Croydon.—Picture palace, Scarbrook Hill. Mr. G. W. Booth, architect, Adelaide Street, London, W.C.

Guildford.—Holy Trinity Church: vestry. Messrs. Tribe & Robinson, contractors, Church Road.

Drill Hall: extension for County T.F.A. Messrs. Jarvis (A.R.I.B.A.) & Richards, architects, 10 Queen Anne's Gate, London, S.W.

Pruslake.—House for Miss Johnson. Mr. T. H. Wood, contractor, Albury.

SUSSEX.

Arundel.—Church Hall, junction of Park Place and Maltravers Street (£1,000).

Bognor.—House, Victoria Drive, for Mr. R. Habin.

Manora House, High Street: additions for Dr. W. Smith.

House, Sylvan Way, for Mr. B. Stephenson.

Petworth.—Twelve cottages for R.D.C. (£2,000).

WORCESTERSHIRE.

Castle Morton.—Workmen's cottages for Upton-on Severn R.D.C. (£900).

Littleton, Offenham, and Pebworth.—Houses for Evesham R.D.C.

Worcester.—County offices.

YORKSHIRE.

Barnoldswick.—R. C. Church. Messrs. W. T. Gunson, & Son, architects, 10 Marsden Street, Manchester.

Ilkley.—Booth Town Chapel: enlargement (£500).

Leeds.—Workshops, Templar Street. Messrs. G. W. Richardson, Son & Will Bell, A.R.I.B.A., architects, 62 Westgate, Wakefield.

Staithe Lane End.—Hospital for Grinkle Miners' Hospital Committee.

York.—Blue Coat School: extensions (£1,250). Messrs. T. Monkman & Sons, architects, Micklegate. Messrs. H. Colman & Sons, contractors, Clifton Green.

WALES.

Llandudno.—County police buildings and Sessions House, Oxford Road.

Twenty-four workmen's dwellings for the Council.

Twenty-eight artisans' dwellings for Llandudno Workmen's Dwellings Company, Ltd. Mr. A. Hewitt, architect, Town Hall Chambers.

Swansea.—St. Barnabas' Church (£8,800).

St. Jude's Church, Mount Pleasant: completion (£8,300).

Girls' secondary school, Dynevor Place. Borough architect.

SCOTLAND.

Broughty Ferry.—No. 7 Newington Terrace: alterations for Mr. D. C. Cowans.

Buckhaven.—Sawmills: workshops for Messrs. Brown & Sons.

Clarkston.—Six villas, Overlee. Mr. J. Grant, architect, 136 Wellington Street, Glasgow.

Dundee.—Property, Broughty Ferry Road: additions for Mr. W. A. Clark.

Property, Clepington Road: addition for Mr. G. Ramsay.

Premises, Old Glamis Road and Kelvin Street: addition for Mr. D. T. Dewar.

Works, Jamaica Street: addition for Messrs. G. C. Taylor & Sons.

Dunfermline.—Cottages, Garvock Terrace. Mr. J. T. Scobie, architect, 5 Douglas Street.

Dairy, Maitland Street: extensions to byres, for Mr. J. Davidson.

Library: alterations and extension (£14,000).

Property, East Port Street: alterations for Mr. J. Ross.

The "Station" Tavern: alterations for Mr. D. Hudson.

Printing Works, East Road, for Mr. J. Watt.

Glasgow.—Offices at Dalmuir: alterations and extensions for Old Kilpatrick P.C. (£600 to £800).

Cabinet lumber store for the Singer Manufacturing Company, Ltd.

Glen Lomond (Supplementary to September 12).—Sanatorium for Fife (accommodation for 150 beds), £20,000 to £25,000. Mr. A. C. Dewar, architect, Mitchell Street, Leven. Messrs. Bruce & Proudfoot, C.E., engineers, Cupar.

Greenock.—School at Ladyburn for the School Board.

Rothsay.—Fire engine house for the C.C.

IRELAND.

Belfast.—Schools of the Holy Family, Newington. Messrs. E. & J. Byrne, architects, 4 Waring Street. Mr. W. Fegan, contractor, Kenboan Street.

Carnaross.—Hibernian Hall. Mr. P. O'Reilly, C.E., architect.

Cork.—St. Finbarre's Cathedral: Chapter-house. Mr. W. H. Hill architect, 28 South Mall. Messrs. Sisk & Sons, contractors, 1 Cove Street.

Dromore.—Orange Hall.

Dublin.—Premises, corner of Parnell Street and Cavenish Row: addition for Nat. Bank, Ltd. Messrs. Ashlin & Coleman, architects, 7 Dawson Street. Messrs. Hull & Co., contractors, Ringsend Road.

Lurgan.—The Rectory: additions and alterations. Mr. R. Lynn, architect, 22 High Street (and at Belfast).

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

10,486. May 2, 1912.—Construction of windows, screens, and the like structures. Jessie Wade, 22 Girdler's Road, West Kensington, W. This invention relates to windows, screens and the like structures, and particularly to means

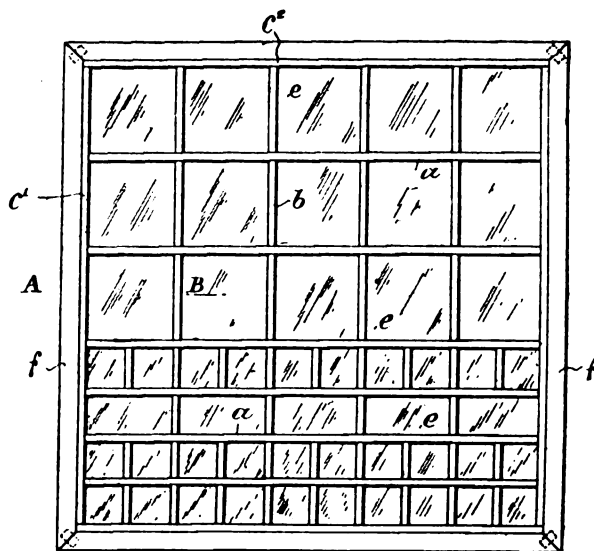


Fig. 1.

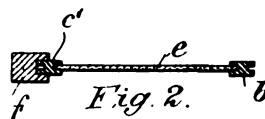


Fig. 2.

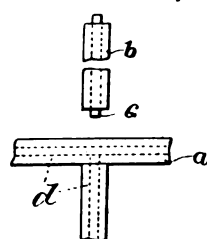


Fig. 3.

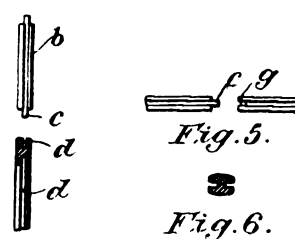


Fig. 4.



Fig. 5.



Fig. 6.

for securing the panes or pieces of glass in position without putty or solder. The object is to enable the panes or pieces of glass to be readily and quickly pieced together and secured together in a frame by a comparatively unskilled person.

The Altheat Stove

FOR THE ECONOMICAL HEATING OF
HOSPITALS, WORKSHOPS, PUBLIC HALLS, ETC.

**The Cheapest to Instal.
The Cheapest to Maintain.**

**NO FLUE
REQUIRED.**

Cost of
Consumption
**ONE
FARTHING**
per hour.



**NO SMELL
or vitiation
of the
atmosphere.**

Can be fixed in
any position.

The Altheat Stove can be used to
VENTILATE
as well as **HEAT** a room.

Extract from Report of the Institute of Hygiene:—"We believe, indeed, that with the advent of the Altheat Stove gas heating will become more and more general, as it appears to us that its chief drawbacks have been effectively and permanently removed."

Full particulars from

THE ALTHEAT CO. LTD., 62 Oxford St.,
London, W.

**MOTOR TRACTION
MEANS—MORE—TRADE.**

Why not Buy the Best?

THE FOUR BEST— COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarsold, Sewest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres.
i.e., Wood-Milne Steelrubber—other makes to order.*



ELECTRIC LIGHT FITTINGS

Of Every Description.

**FRENCH & ENGLISH
PERIOD FITTINGS.**

Very Large Selection of English
Fittings; also for Indirect and
Semi-Indirect Lighting.

DESIGNS TO ARCHITECTS' DRAWINGS AND
SPECIFICATIONS FORM A SPECIAL FEATURE.

Just published, New Catalogue, 296 pages, post free upon application.

FALK STADELMANN & CO., LTD.,
83-87 FARRINGDON ROAD, LONDON.

And at **GLASGOW
& MANCHESTER.**

The invention is particularly applicable to ornamental windows or screens in resemblance to stained glass work. The invention consists in providing jointing bars with longitudinal grooves to receive the edges of the panes or pieces of glass, and with end tongues for engaging with the grooves in adjacent bars, whereby the end of one bar can be set in position in the length of an adjacent bar, and many adjustments can instantly be made to suit various sizes and shaped of panes or pieces without necessitating skill in the making of joints. The panes or pieces of glass are held firmly in place, and can be readily removed or renewed. Fig. 1 shows a window composed of a number of small panes of glass. Fig. 2 is a section on the line A-B, fig. 1, drawn to a larger scale. Figs. 3 and 4 are respectively a front view and a side view of three bars. Fig. 5 illustrates an end joint. Fig. 6 is a cross-section showing another form of bar. A number of bars a, b, are grooved longitudinally on two sides. The bars are cut in two sizes, long bars a, for running from one end to the other of the window, and short bars b, to extend from one long bar to the next. The short bars b, are provided with tongues c, at their ends which are inserted into the grooves d, in the long bars in positions corresponding to the sizes of the panes or pieces of glass they are to hold. The glass panes e, are held by the bars a, b, surrounding them, the edges of the panes being firmly held in the grooves d, in the bars a and b. The outermost extremities of the bars a and b are received in the grooves of connecting members c¹, c², respectively, carried in a groove formed in a surrounding frame f. A composite window or set of panes can be made up to any desired size, and the design varied at will, by re-arrangement of the bar members a, b. The corners of the main frame f, may be mortised, mitred, or secured upon a metal tongue, in such a manner as to permit of ready detachment in order to permit of the renewal and removal of some or all of the panes as required. Some of the bars a, or b, are provided at their ends with recesses g, and others with tongues c, as indicated at fig. 5, in order to enable longer bars to be readily made by inserting the tongue c of one into the recess g of the other, and these auxiliary bars can be made of many different lengths to suit panes of special sizes. Aug. 13, 1913.

PATENT SPECIFICATIONS PUBLISHED SEPTEMBER 18, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House Temple Bar, London.

- 5,822. March 8, 1913.—John Edwards, Rose Hill, St. Austell, Cornwall. Crushing and grinding apparatus for grinding gravel, sand, and the like.
- 24,073. Oct. 22, 1912.—The Armorduct Manufacturing Co., Ltd., and William Schmahl, 6 Farringdon Avenue, E.C., and P. W. L. Camps, M.B., B.S., F.R.C.S., 1 Udney Park, Teddington. Suction cleaners for the extraction of dust.
- 25,222. Nov. 4, 1912.—A. G. Hansard. Parliament Mansions, Victoria Street, S.W. Sundials.
- 28,871. Dec. 16, 1912.—G. H. Lamb, 26 Vicarage Lane, Stratford. Locks.
- 29,266. Dec. 19, 1912.—Dated under International Convention, Sept. 16, 1912. Gilliot & Cie., Hemixim-les-Anvers, Belgium. Mosaic slabs or the like.
- 3,795. Mar. 8, 1913.—C. G. Gulbrand, Holmenkollen, near Christiania. Floors and roofs and method of constructing same.
- 6,256. Mar. 13, 1913.—J. C. G. Sperti and D. S. Bond, of Sicilian House, Sicilian Avenue, W.C. Tiles, slabs and the like for roofing and other constructive purposes.
- 6,306. Mar. 14, 1913.—Robert McArd, Canal Street, Miles Platting, Manchester. Adjustable hinge fittings for closet seats.
- 7,069. Mar. 25, 1913.—Thilde Diestelhorst, Baum-schulenburg, Berlin. Double holder for artists' crayons.
- 7,206. Mar. 26, 1913.—H. E. White, 1,435 Kensington Avenue, Youngstown, Mahoning, Ohio, U.S.A. Process for making expanded metal structures.
- 9,666. April 24, 1913.—Abel Bardin, 11 bis rue Jean Nicot, Paris. Manufacture of reinforced glass.
- 18,152. Aug. 7, 1912.—Frederick Sharp, 2 George Street, Hurst Cross, Ashton-under-Lyne. Joiners' benches.
- 19,398. Aug. 24, 1912.—F. H. Lees, 344 Newtown Row, Birmingham. Acetylene-gas generators, applicable also to other means for generating gas by the admission of a liquid to a chamber in which the gas is generated.

- 19,710. Aug. 29, 1912.—W. W. Smith and A. H. Smith, 14 Upper Stone Street, Maidstone. Domestic fireplaces with various appurtenances connected thereto.
- 19,921. Aug. 31, 1912.—A. H. Taylor, 35 Kirkley Road, Wimbledon, and H. A. Pinney, 21 Grove Road, Wanstead. Means for fixing electrical and other fittings to concrete and ferro-concrete and like structures.
- 19,754 and 19,771. Aug. 29, 1912.—A. J. Kercher, 1932 Center Street, Berkeley, Alameda, California, U.S.A. Electrically heated cookers.
- 12,170. Sept. 30, 1912.—Thos. White, of Thos. White & Sons, Ltd., Laigh Park, Paisley. Wood-sawing or like machines.
- 24,080. Oct. 22, 1912.—A. J. Barratt, 14 Hall Street, Birmingham. Metal hinges.
- 26,660. Nov. 20, 1912.—R. F. Carey, 6A The Broadway, Leigh-on-Sea, and R. Waygood & Co., Ltd., Falmouth Road, Great Dover Street, S.E. Vacuum cleaning systems.
- 27,473. Nov. 29, 1912.—James Hartley, 2964 Kensington Avenue, Philadelphia, U.S.A. Fire and temperature alarms.
- 27,715. Dec. 2, 1912.—Dated under International Convention, April 23, 1912. A. A. E. Morin, 28 rue de l'Alma, Cherbourg (Manche), France. Cocks or valves.
- 29,493. Dec. 21, 1912.—W. A. Fraser, Georgetown, Halton, Ontario. Faucets or taps and cocks.
- 30,112.—Dec. 31, 1912.—James Schonenberger, 56 Via Bologna, Turin. Radiators for heating buildings.
- 3,146. Feb. 6, 1913.—Wilhelm Ruckert, 5 Fontainestr., Hanover, Germany. Automatic door-stop.
- 4,258. Feb. 19, 1913.—Louis Shoenck, 4 rue Notre-Dame, Eeckeren, Belgium. Safety device for door locks.
- 4,264. Feb. 19, 1913.—C. W. Hildred, 283 Brownhill Road, Catford, S.E., and R. Waygood & Co., Ltd., Falmouth Road, Great Dover Street, E.C. Luffing cranes.
- 4,275. Feb. 19, 1913.—Dated under International Convention, Feb. 23, 1912. Rene Bablon, 14 rue de Bagnolet, Les Lilas, France. Cocks, taps or the like.
- 6,874. March 20, 1913.—Robert Eschke, 4 Hochstr., Nurnberg, Germany, architect. Roller chutes for bricks.
- 9,050. April 17, 1913.—G. De Rosa, 2393 First Avenue, New York, U.S.A. Valves for closet tanks.
- 9,230. April 19, 1913.—Chas. Hopewell, 7 Clemow Avenue, Ottawa, Ontario. Combination traps and flushing devices for the waste pipes of tanks.
- 10,177. April 30, 1913.—Jean Klosters, 80 Colnerstr., Frankfurt-on-Maine, Germany. Glass mosaics.
- 11,286. May 14, 1913.—Dated under International Convention, May 15, 1912. J. J. Dawson, Toppenish, Yakima, Washington, U.S.A. Fire-escapes.
- 11,382. May 15, 1913.—Dated under International Convention, May 15, 1912. Gustav Weber, 40 Potthofstr., Hagen in Westphalia, Germany. Boat hinge and method of manufacturing same.
- 11,749. May 20, 1913.—Dated under International Convention, June 1, 1912.—Chemische Fabrik Gustrow, Dr. Hillringhaus and Dr. Heilmann, of Gustrow, Brandenburg, Germany. Production of white and opaque enamels.
- Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Proposed New Government Buildings, Ottawa.

SIR,—I send you herewith copy of a letter which I have just received from the Secretary to the High Commissioner for Canada.—Yours faithfully,

IAN MACALISTER,
Secretary.

September 18, 1913.

Sir,—I beg to inform you that a notification has been received by cablegram to-day from the Department of Public Works at Ottawa that the date for receiving inquiries from competitors has been extended to October 30.—Yours faithfully,

(Signed) W. L. GRIFFITH,
The Secretary, Royal Institute of British Architects.
September 16, 1913.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,
and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

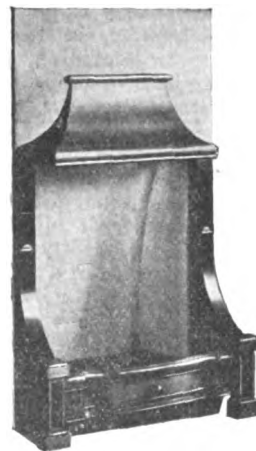
25 Victoria St., Westminster, S.W.

GOLD MEDAL

"Bell" Grates

are in use at

The Mill House,
Dersingham.
Russley Park.
Inveraray Castle,
Ludlow Castle.
Rushton Hall.
Nevill Holt.
Belton Hall.
Redworth Hall.
Whittington Old Hall.
Fyvie Castle,
&c., &c.



GOLD MEDAL
"Bell" Grates

are in use at

Royal Liver Buildings,
Liverpool.
Junior United Service
Club.
Royal Southern Yacht
Club.
Union Club,
Birmingham.
Liberal Club, Glasgow.
United Service Club,
Lucknow.
Grand Hotel, London.
Cameron Hotel,
Swansea.
Albany Hotel,
Hastings.
Savoy Hotel, London.
Sandhurst College.
King Edward
Grammar Schools,
&c., &c.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.

REA METAL CASEMENTS

LTD.,

KNOWSLEY WORKS, STANLEY, LIVERPOOL

MANUFACTURERS OF



HALF FULL SIZE.

**METAL CASEMENTS
& SASHES of every
description,
LEADED GLAZING &
STAINED GLASS.**



Telephone,
365 Old Swan.
Telegrams,
"Enlighten, L'pool."

CONTRACTORS TO
H.M. GOVERNMENT.

Ben Henry Johnson & Sons

MODELLERS and PLASTERERS

ARTISTIC FIBROUS PLASTER WORKERS

SPECIALISTS IN FRENCH STUC WORK

Mouldings in Wood, Compo & Enriched Plaster

A FEW RECENT IMPORTANT CONTRACTS:

NEW ADELPHI HOTEL, Liverpool

(First and Second Contracts)

NEW LIVER CHIEF OFFICES - - - Liverpool

WHITELEY'S NEW PREMISES - Westbourne Grove

CARLTON HOTEL (after Fire)

VICKERS HOUSE - - - Broadway, London

69 VICTORIA STREET, LONDON, S.W.

And Primrose Hill, Fontenoy St., LIVERPOOL.

Wires:

"JONSONIPLA, LONDON."

"HENJONIN, LIVERPOOL"

STUDIOS AND WORKSHOPS:
PARKHILL RD., HAMPSTEAD

'Phones:

5419 VICTORIA.

626 & 627 CENTRAL, LIVERPOOL
(ADELPHI) ROYAL 4434.

The Architect.

CONTENTS.

	PAGE
The Morality of Art	301
Notes and Comments	302
Competition News	304
Illustrations :—	
Window, 55 Westgate Road, Newcastle-upon-Tyne	304
City of Leeds Training College	304
Canterbury Cathedral : Western Towers	304
St. John's Hospital, Canterbury	304
The Home of Dorothy Vernon (illustrated)	305
Reinforced Pile Foundations for Blast-Furnaces	307
Architecture of London Highways	308
Recent Progress in Gas-Fire Science	310
The National Gas Exhibition	312
Furniture	313
So-called "Crystallisation through Fatigue"	315
Hunting-Box of the Graf Pappenheim at Bujak, Hungary (illustrations)	316-7
Building in Winnipeg	316

	PAGE
Manitoba's Minerals	317
London University Extension Lectures	319
Building Progress in the Provinces	319
British Patent Specifications	321

FORTHCOMING EVENTS.

Monday, October 6.

Society of Engineers : Paper by Mr. G. H. Cooper, M.I.C.E., entitled "Highways," at the Institution of Electrical Engineers, at 8 P.M.

Wednesday, October 8.

Manchester Society of Architects : Presidential Address by Mr. John Brooke, F.R.I.B.A., at 6.30 P.M.

Thursday, October 9.

National Gas Exhibition : Conference on Coal-Smoke Abatement, at 11 A.M.

Friday, October 10.

Incorporated Institute of British Decorators : Paper by Mr. L. A. Shuffrey, entitled "Treatment of Woodwork in Decoration," at Painters' Hall, Little Trinity Lane, at 8 P.M.

THE MORALITY OF ART.

AMONGST the subjects treated by Paul Gaultier in his work * on the Meaning of Art is the question of the morality of art. By some art has been regarded as entirely opposed to morality or, at least, held in suspicion by serious men on religious or moral grounds. Mohammed forbade paintings and sculptures, Rousseau and Tolstoi denounced the fine arts as servants of luxury and pleasure, and the Puritanical mind in all ages has held that art should be banished from life as an influence that corrupts manners and excites the passions. There are still many people who tolerate it only where it makes honourable amends by serving morality and religion. On the other hand, there have been those who glorified its influence, representing it as opposed to immorality, as purifying and ennobling everything it touches. This is the point approached by the theorists of "Art for art's sake."

One argument that has been advanced in support of the proposition that art is immoral is that it imitates nature, which is perverse at bottom, but both the premise and the deduction of this argument are unsound. Nature is not immoral, but indifferent or non-moral, even if she is sometimes so neutral that morality requires us often to oppose her, and that she gives us shameful examples of wickedness. Although art has directly nothing to do with morality, it may be, and frequently is, a valuable instrument for the teaching of moral principles. By reason of its essential character as appealing only to the sentiments, it bears on morality or immorality only so far as the sentiments which it contains, the sentiments felt by the artist at the moment of execution, transmitted by the æsthetic emotion.

The morality of a work of art depends not upon that of the things represented but upon the character of the sentiment through which they are represented. Thus the representation of immoral subjects may serve an eminently moral purpose, as in the case of Hogarth, but this has nothing to do with the æsthetic value of the work of art. The moral value of the work of art is often, indeed, the opposite of that of the subject. There are works of moral subjects which should be considered as distinctly immoral, whilst there are others, on the contrary, which, though depicting the immoral, are really morally elevating on account of the nobility of sentiment which fills and inspires them, such as pity for the victims of fate, whether they be victims of social egotism or

victims of war and indignation against the villainies of all kinds by which nature is soiled. Nothing proves this better than caricature. Caricature shows that the work of art may be, if not opposed to the character of the subject, at least separate from it. In the case of most caricatures, presentation of the monstrous, even its exaggeration, is for the few who really understand certainly not a ground of reproach, still less of immoral propaganda, but a motive of edification.

No true art can be considered moral or immoral only from an emotional point of view, since independently of its fundamental morality or immorality which is in question, the only quality particular to each work is that which is stamped in the style, and which comes from the character of the artist, or more exactly, from the tendencies in which the work has been conceived and executed. It has been advanced that art is conventional and deceptive, existing apart from reality and even in opposition to it, and therefore tends to unfit us for the opportunities of the true and practical life, substituting for it a sort of illusion, and therefore immoral in tendency. But while art does use artifices and even deceptions, imparting an illusion to the truth of what it depicts, still it is not so deceptive as that these are given to us purely and simply as substitutes for reality. In fact art is not entirely fictitious; on the contrary, the feeling which is at its foundation and that from which alone the subject obtains its æsthetic worth is, on the contrary, real and living. The kernel and centre—the germ, so to speak—around which all the rest gathers. This feeling infuses life into the work of art.

The position taken by some philosophers or critics is that æsthetic emotion is a pleasure of the senses or a sensual pleasure, and as such is opposed to all morality, since there is no virtue without effort. Therefore they say that by developing sensuality art corrupts morals. This, of course, is the basis of the Puritanical point of view that pleasure, and particularly sensual pleasure, is in itself immoral and, in effect, is very closely allied to the pagan idea that virtue is only to be attained and exercised by voluntary discomfort, that one can please a divinity only by making oneself miserable. It is, however, more reasonable to take the view that the pleasure of the senses accompanying their natural exercise is not in itself bad. What is bad is the sensual delight by which we may react to it, the delight which we take in its exclusive pursuit to the detriment of our higher interests.

On the other hand, those who assert the supreme morality of art, who teach that art purifies all that it touches, that it is a safeguard against passion and consequently that it cannot in any circumstance or in any way become immoral, are also going too far in the advocacy of

* *The Meaning of Art: Its Nature, Role and Value.* By Paul Gaultier. With a preface by Emile Boutroux, Member of the Institute of France. Translated from the third French edition by H. & E. Baldwin. With 38 illustrations. (London: George Allen & Co., Ltd. 5s. net.)

their particular point of view. It is an erroneous theory which makes of æsthetic sentiment a depository of virtue, identifying the beautiful with the good as the Greeks did, and as certain of our modern æsthetes do by absorbing morality in the cult of the beautiful. All that arouses our admiration is not necessarily virtuous. There are beautiful things which are not good. In fact, the history of art shows us works which are particularly beautiful, but which reveal, mingled unconsciously by their authors with what is beautiful, the expression of the lowest and most compromising sentiments. There are authentic works of art which embody a clear motive of perversion.

Art, therefore, in itself is neither actively moral nor immoral, although it may be the vehicle of both moral and immoral activities. The position which must be assigned to art is similar to that of nature, which in itself is non-moral. Art may serve as the preface or prelude to morality by the magic of æsthetic emotion which produces in our minds certain dispositions analogous to those which the moral life claims and creates. Without leading us directly to virtue these dispositions incline us towards it by a sort of internal polarisation in which we feel the omen and prophecy of morality.

NOTES AND COMMENTS.

THE policy of appointing official guides for the better appreciation by the general public of the national collections has been adopted by the Board of Education in respect of the Victoria and Albert Museum, for which an official guide has been provisionally appointed for six months from October 1 to conduct parties of visitors round the Museum. No charge will be made for his services and no gratuities are to be offered. The regular tours of the guide start from the Entrance Hall at 12 noon and 3 P.M. daily, but his services can also be obtained without charge by special parties between the hours of 10 and 12 A.M. and from 4 to 6 P.M. on any weekday. Our national museums have been developed primarily as a field of information for students, and for them the services of a guide have not appeared necessary, since the requirements of each individual student are necessarily peculiar to himself, and his studies are best carried out independently and untrammelled. But it is the general public who pay for these museums, and it is only right, therefore, that some means should be adopted of enabling them to appreciate, under adequate guidance, the value of the collections they contain, rather than that they should be allowed simply to wander aimlessly through institutions whose *embarras de richesses* virtually converts them into a desert.

The family dispute between the bricklayers and plasterers as to which trade should build walls of rough breeze concrete blocks, requiring floating and finishing with plaster, at the Adelphi Hotel, Liverpool, still remains unsettled, and has almost brought to a standstill the building trade of the city. Some dominant authority is clearly necessary to adjust questions of this sort between the various trades amongst which building is divided. Claims by one or other of the trade unions that they alone should be allowed to do certain work have repeatedly resulted in disputes of this nature, with consequent strikes and lock-outs, as when the bricklayers claimed that they alone should be allowed to lay tiling on roofs, and in the dispute between the plumbers and engineers as to who should fix certain descriptions of pipe in hot-water work. With the continual advance that is being made in the introduction of new materials and new applications of old material, such questions are likely to be of even more frequent occurrence in the future than in the past. It is only human nature that, having accepted the principle of "one man, one job," each individual trade union should endeavour to scoop into its net as many fresh jobs as possible for the exclusive practice of its members.

Newcastle is added to the list of those municipalities who squabble and do silly things with regard to their proposed building operations. The Newcastle City Council at its meeting last week, specially convened to consider—and it was supposed finally settle—the problem of the Newcastle Town Hall which has exercised the municipal mind for a generation and more, followed what would now seem to be becoming quite a favourite practice. A report was presented, a resolution proposed upon it, an amendment brought forward and carried, and then the amendment, when put as a substantive motion, rejected. The love of opposition seems to be the dominant characteristic of modern municipal bodies when they meet in council.

The result of the inquiry by a coroner's jury in the case of the five men who were killed by the fall of a steel chimney at the Workington Iron & Steel Company's Mossbay Works was a verdict of "Accidental death," but the coroner appears to have adopted in his summing-up the evidence of Mr. Skerry, representing the Workington Iron & Steel Company, that the cause of the fall of the chimney was that there had been timber under the concrete, and from appearances it had charred away, and there had been a cavity formed under the concrete by reason of the timber consuming away. This weakened the concrete, and took away its support. That may have been going on for some time when the whole weight of the chimney would be on the concrete, naturally causing it to collapse, and we are curious to know for what reason this timber was inserted, as described by Richard Reid, foreman erector, who said that he put the timber in at the foundations of the chimney thirty years ago. There were two feet of concrete, four rows of timber, and concrete on the top of them. It would appear that someone had imbibed the theory, which has been advanced more than once, that the reinforcement of concrete does not necessarily imply the use of steel or iron, but that timber may be used to give the needed resistance to concrete against tensile strain. Although undoubtedly the theory has a certain amount of plausibility, and may, in certain cases, be carried into practice, the recent accident at Workington shows that other qualities of timber, besides its tensile strength, ought to be taken into account, namely, its liability to decay and combustion.

It is rather amusing to see, in the announcement that the Royal Commissioners for the Exhibition of 1851 have awarded the Rome scholarship in sculpture to Mr. Ledward on the recommendation of the Faculty of Sculpture of the British School at Rome, that Mr. Ledward is the first sculptor to win the scholarship. When a scholarship is offered for the first time the winner is generally the first one to receive it.

The prospectus of the Royal College of Art sets forth that now the Royal College of Art is maintained for the purpose of training Art Masters and Mistresses for the United Kingdom, and for the instruction of students in drawing, painting, modelling and designing, for architecture, manufactures, and decoration. Whilst the Royal College of Art is primarily intended for the instruction of teachers and students selected by competition in the Art Examinations of the Board of Education, other students are admitted so far as there may be accommodation for them, on the payment of fees.

The courses are arranged for the holders of National Scholarships, Royal Exhibitions, and Free Studentships.

There is no age limit for candidates desiring to enter the College.

The number of fee-paying students may not exceed 150 at any one time; and the total number of free and fee-paying students per Term in the College is limited to 350.

Such being the expressed purpose of the Royal College of Art, instruction will also be given on

"Methods of Teaching," and a "Literary Course" of which all students of the College are required to attend the lectures, to write essays on various subjects connected with the lectures, and to attend the French or Italian classes held by the lecturer, unless they already show a competent knowledge of either of these languages. The lectures are to be delivered on crafts and the general history of art.

The Local Government Board has recently issued a series of circulars to County Councils, Town Councils, Urban District Councils, and Rural District Councils and Guardians, calling their attention to certain Acts of Parliament which have been passed during the recent session of Parliament, and which contain provisions affecting the powers and duties of those councils. The Acts in question are:—

The Local Government (Adjustments) Act, 1913 (3 and 4 Geo. 5, c. 19).

The Public Health (Prevention and Treatment of Disease) Act, 1913 (3 and 4 Geo. 5, c. 23).

The Ancient Monuments Consolidation and Amendment Act, 1913 (3 and 4 Geo. 5, c. 32).

The Expiring Laws Continuance Act, 1913 (3 and 4 Geo. 5, c. 15).

The Local Government (Adjustments) Act, 1913, passed in order to carry into effect the recommendations of the Joint Select Committee of the House of Lords and the House of Commons appointed to inquire into the application of the provisions contained in the Local Government Acts, 1888 and 1894, relating to financial adjustments consequent upon the alteration of the boundaries of a local government area or on an alteration in the constitution or status of the governing body of a local government area, and to report whether in their opinion any amendments in such provisions were desirable. The statutory provisions in question are contained in Sections 32 and 62 of the Local Government Act, 1888, and Section 68 of the Local Government Act, 1894.

The chief point upon which differences of opinion had arisen was the question whether compensation was properly payable by one authority to another in respect of the loss of rateable value consequent upon the transfer of some area from one local government unit to another.

The conclusion to which the Committee came on this subject is stated in paragraph 10 of their report as follows:—

"The Committee are of opinion that while it would not be just to give to either party compensation for loss of rateable area as such, yet each party before the arbitrator should be entitled to produce evidence to prove that in carrying out the administration of their areas and maintaining their roads and bridges they would on the figures as they stand at the appointed day have legitimately imposed upon them an increased burden or a burden which would, in the judgment of the arbitrator, be thrown upon them at some future time, in reference to some particular head of administration in consequence of the taking away of part of the area, and that compensation should be paid to the party having to bear such increased burden in each case in which it was proved to exist."

The Public Health (Prevention and Treatment of Disease) Act, 1913, was passed with a view to removing some administrative difficulties which have been experienced in connection with the law relating to public health.

Section 281 of the Public Health Act, 1875, which relates to the establishment of joint boards for united districts, enacts that upon the constitution of a joint board the local authorities having jurisdiction in the component districts or contributory places shall cease to exercise therein any powers, or to perform any duties or be subject to any liabilities or obligations which the joint board is authorised to exercise or perform or is made subject to.

Section 1 of the new Act empowers the Local Government Board, notwithstanding the provisions of the enactment above referred to, to authorise by order a local authority having jurisdiction in any part of a united dis-

trict to exercise in relation to that part any powers which the joint board are also authorised to exercise subject to such restrictions and conditions as may be imposed by the Order.

Again, Section 130 of the Public Health Act, 1875, enables the Local Government Board to make regulations for preventing the spread of cholera or other epidemic, endemic, or infectious disease, and to declare by what authority or authorities these regulations shall be enforced.

As county councils had not been established when the Act was passed, it was considered that such councils could not properly be declared to be authorities for carrying any such regulations into effect. But in dealing with some diseases it may be found desirable that some functions should be carried out by an authority having jurisdiction over a large area. Section 2 of the Act accordingly enables the Local Government Board to declare that one of the authorities to execute and enforce the Board's regulations made with a view to the treatment of persons affected with cholera or any other epidemic, endemic, or infectious disease, shall be the council of a county, and Section 130 of the Act of 1875 will have effect accordingly as if a county council were an authority within the meaning of that section. It is, however, provided that a county council shall not, except in case of emergency, be required to execute and enforce any such regulations without their consent.

The purpose of Section 3 of the Act is to give extended powers in regard to the treatment of tuberculosis by local authorities.

Section 4 of the Act directs that any expenses incurred under the Act are to be defrayed, in the case of a sanitary authority, as part of the expenses incurred in the execution of the Public Health Acts, and, in the case of a county council, as expenses for general county purposes, or, if the Local Government Board by order so direct, as expenses for special county purposes charged on such part of the county as may be provided by the order.

The Ancient Monuments Consolidation and Amendment Act, 1913, consolidates, with various amendments, the previous measures dealing with the preservation and maintenance of ancient monuments, namely, the Ancient Monuments Protection Act, 1882, the Ancient Monuments Protection Act, 1890, and the Ancient Monuments Protection Act, 1910. These Acts are repealed with the exception of the Schedule to the Act of 1882, which contains a list of certain ancient monuments to which the Act applies.

The expression "monument" is defined as including any structure or erection, other than an ecclesiastical building which is for the time being used for ecclesiastical purposes; and the expression "ancient monument" as including any monument specified in the Schedule to the Ancient Monuments Protection Act, 1882, and any other monuments and things which, in the opinion of the Commissioners of Works are of a like character, and any monument the preservation of which is a matter of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attached to it, and the site of any such monument or of any remains thereof; and any part of the adjoining land which may be required for the purpose of fencing, covering in, or otherwise preserving the monument from injury, and also as including the means of access thereto (Section 22).

The local authorities within the meaning of the Act are the council of every county and borough and the Common Council of the City of London (Section 21).

Part I. of the Act deals with the acquisition of ancient monuments.

The Council are by Section 1 (2) empowered if they think fit to purchase by agreement any monument situate in or in the vicinity of their area, which appears to them to be an ancient monument within the meaning of the Act, and Section 1 (3) provides that for the purposes of any such purchase the Lands Clauses Acts shall be incorporated with the present Act with the exception of the provisions which relate to the purchase and taking of

lands otherwise than by agreement. Section 2 enables any person by deed or will to give, devise or bequeath to the Council all such estate or interest in any ancient monument as he may be seised or possessed of, and empowers the Council to accept any such gift, devise or bequest if they think it expedient to do so.

In connection with this subject, Section 20 (2) provides that any conveyance, appointment, devise, or bequest of land or any estate or interest in land under the Act to the Council is not to be deemed to be a conveyance, appointment, devise, or bequest to a charitable use within the meaning of the Acts relating to charitable uses.

Part II. of the Act relates to the guardianship of ancient monuments.

Section 3 (2) empowers the owner of any monument which appears to the Council to be an ancient monument within the meaning of the Act, and is situate in or in the vicinity of their area to constitute by deed the Council, with their consent, guardians of the monument. The Council are prohibited from consenting to become guardians of any structure which is occupied as a dwelling house by any person other than a person employed as the caretaker thereof or his family. The remainder of the section deals with various matters incidental to or consequential on the execution of a deed of guardianship.

"Owners" for the purposes of this part of the Act include not only persons who are absolutely entitled to, but persons possessing certain limited interests in land forming the site of an ancient monument, as well as certain classes of trustees and other bodies (Section 5).

By Section 4 (1) the Council, where they become guardians of an ancient monument under the Act, are required, until they receive notice in writing to the contrary from any owner of the monument who is not bound by the deed constituting them guardians of the monument, to maintain the monument, and, with a view to its maintenance, are enabled to have access to it by themselves, their inspectors, agents, or workmen for the purpose of inspecting it and of bringing such materials and doing such acts and things as may be required for its maintenance. For this purpose "maintenance" includes the fencing, repairing, and covering in of a monument, and the doing of any other act and thing which may be required for the purpose of repairing the monument or protecting it from decay or injury, and the expression "maintain" is to be construed accordingly (Section 4 (3)).

Part IV. of the Act contains various provisions of a supplementary and general character. Under Section 9 the Council are empowered to receive voluntary contributions towards the maintenance and preservation of any monument of which they become the owners or guardians under the provisions of the Act, and to enter into any agreement with the owner of a monument or with any other person as to its maintenance and preservation and the cost thereof.

The Commissioners of Works and the Council are empowered by Section 10 in respect of any monument of which they are the owners or guardians (but where they are guardians only with the consent of the owner) to enter into and carry into effect agreements for the transfer from the Commissioners to the Council or from the Council to the Commissioners of the monument or of any estate or interest therein or of the guardianship of the monument. Similar agreements may be made by the Council with another local authority under the Act.

Under Section 11 the Council are enabled, at the request of the owner, to undertake or contribute towards the cost of preserving, maintaining, and managing any monument which appears to them to be an ancient monument and is situate in, or in the vicinity of their area, whether they have purchased the monument or become the guardians of it or not. The plans and specification of all works, other than those of immediate necessity, to be undertaken or contributed by the Council must be submitted to the Ancient Monuments Board constituted under Section 15 of the Act, and that Board, if they object to any plans or specifications, are to report

the matter to the Commissioners of Works whose decision is to be final.

Section 13 provides that with certain savings or exceptions the public are to have access to any monument of which the Council are the owners or guardians at such times and under such regulations as are from time to time prescribed by the Council.

Section 14 imposes penalties for injury to or defacement of a monument of which the Council are owners or guardians.

Under Section 21 (2) the expenses of the London County Council under the Act are to be defrayed as payments for general county purposes, and in the case of any other county council are to be defrayed out of the county fund, and the Councils are empowered to borrow for the purposes of the Act as for the purposes of the Local Government Act, 1888.

The Expiring Laws Continuance Act, 1913, continues in force until December 31, 1914, the Local Government (Elections) Act, 1896, which enables county councils to deal with difficulties arising at elections of parish or district councillors or guardians, the Motor Car Act, 1903, and the Unemployed Workmen Act, 1905. The Act also continues in force the Agricultural Rates Act, 1896, until March 31, 1915.

COMPETITION NEWS.

BRIGHTON.—The Aquarium Committee of the Town Council recommend that the Town Clerk should be instructed to draft the conditions upon which competitive designs for a new concert hall at the west end of the Aquarium, to seat 2,500 people, may be invited, and that premiums of £100, £50, and £25 should be offered.

COVENTRY.—The City Council at their meeting on Tuesday last adopted a recommendation in connection with the proposal for a new municipal technical institute on Pool Meadow. The Education Committee recommended that the instructions to architects be approved and issued, that the architect whose sketch plans are in their opinion most meritorious be instructed to prepare definite plans for an institute at a cost not to exceed £25,000, and subject to a satisfactory tender, to appoint the selected architect as architect for the work, at an inclusive fee of £1,000.

LONDON.—The Central Executive Committee of the Victoria League offers a prize of £25 for the best design for a banner. The size of the banner is to be 7 feet long by 4 feet broad, and all designs must be drawn full size. The main object of the League, viz. "the promotion of closer union between British subjects living in different parts of the world," must be symbolised. The designs will be received not later than October 1, 1914.

ILLUSTRATIONS.

NO. 55 WESTGATE ROAD, NEWCASTLE-UPON-TYNE.

THIS fine Georgian house (now belonging to Messrs. Hy. Walker & Son) possesses some excellent late Renaissance work by Italian craftsmen. It dates about 1760. The staircase is of the Geometrical type, the walls of which are enriched with beautiful plaster work. On the half-space landing stands this fine-proportioned window of Venetian design. The interior order is in plaster painted brown, with pedestals of wood, whilst the exterior is built in stone, with good mouldings. The windows are double-hung, and are divided into pleasing squares by 2-inch sash bars, giving a good effect.

CITY OF LEEDS TRAINING COLLEGE.

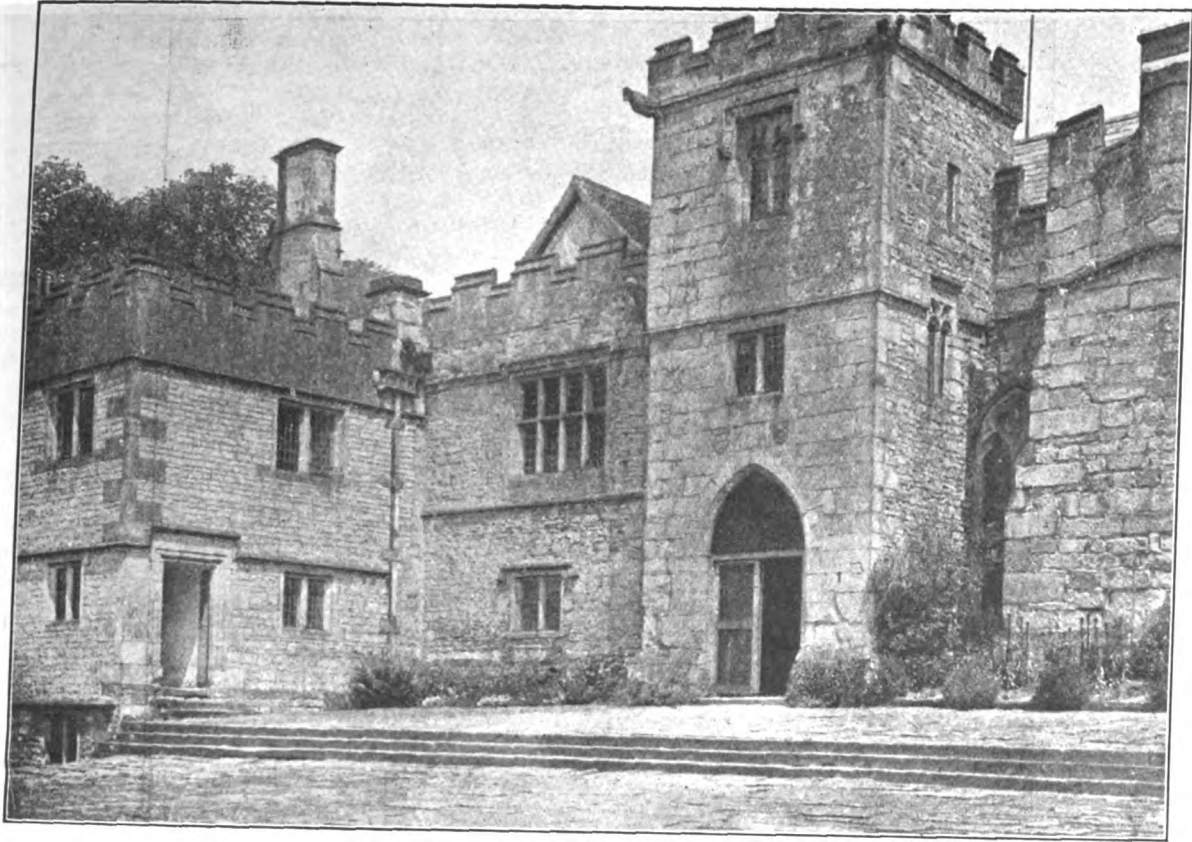
WE this week give illustrations of the Cavendish, Fairfax, and Priestley Halls of the City of Leeds Training College, descriptions of which appeared with other illustrations of the college in our issue of September 19.

WESTERN TOWERS, CANTERBURY CATHEDRAL.

OUR illustration is reproduced from an etching by Mr. Hy. G. Webb.

ST. JOHN'S HOSPITAL, CANTERBURY.

THIS view of one of the examples of half-timber work in Canterbury reproduces a pencil drawing by Mr. Hy. G. Webb.



INNER COURTYARD, HADDON HALL

THE HOME OF DOROTHY VERNON.

BEAUTIFUL HADDON AS SEEN TO-DAY.

By J. H. CRABTREE, F.R.P.S.

THE pictorial aspect of Haddon has wonderfully improved in recent years, and the Hall of the Vernons now presents several attractive features of the olden time which make it more popular than heretofore.

In this beautiful preserve of antiquity lived Dorothy Vernon, with her father, Sir George Vernon, and an elder sister. The "King of the Peak" kept "open house" at Haddon, where all and sundry, rich and poor, learned and illiterate, might at any hour of the day or night gain admittance, with free board and lodging. Sir George was admired throughout Peakland for his unexampled philanthropy. He came to the Haddon estates through his ancestor, Richard Vernon, one of the fortunate retainers of William the Conqueror. Here was a lovely stretch of country, and Sir George bestowed on it his benison with a lavish hand. The Hall was embattled and strengthened along its outer ramparts, although during the most perilous periods of the Civil War not a bullet was lodged within its boundaries, and not a single matchlock was aimed at its buttresses.

It is remarkable that when Cromwell and his Ironsides were pounding away at Chatsworth and other baronial halls in the vicinity, Haddon was enjoying the happy privilege of "strict neutrality," and Sir George Vernon was entertaining in truly regal fashion. He was, in fact, in his elemental glory when dispensing creature comforts among his friends and neighbours.

Around the Hall a forest of trees was planted. The effect of this foresight is patent to all who gaze upon the sturdy oaks and giant beeches on the hill-slopes of Haddon. The Norman Keep is the striking feature of the "front line." It is imposing, quaint, and severe enough to whet the appetite for further scenes and memories of yesterday. Its gargoyles are fearsome, and its shields in weathered stone are emblematic of a high-born family. The hoop of metal which depends from the tower may have some reference to the eternal supply of mead from the barrel to all comers.

The approach to the baronial Hall is none the less charming. The river Wye meanders at the foot of the Keep, running hither and thither with a series of never-ending sinuosities. The hog's-back bridge has borne hosts of visitors, brought here by coach and charabanc from the towns and villages within a twenty-mile radius. The cottages of the custodians form an artistic setting at the very threshold, and the pretty samples of topiarian handiwork

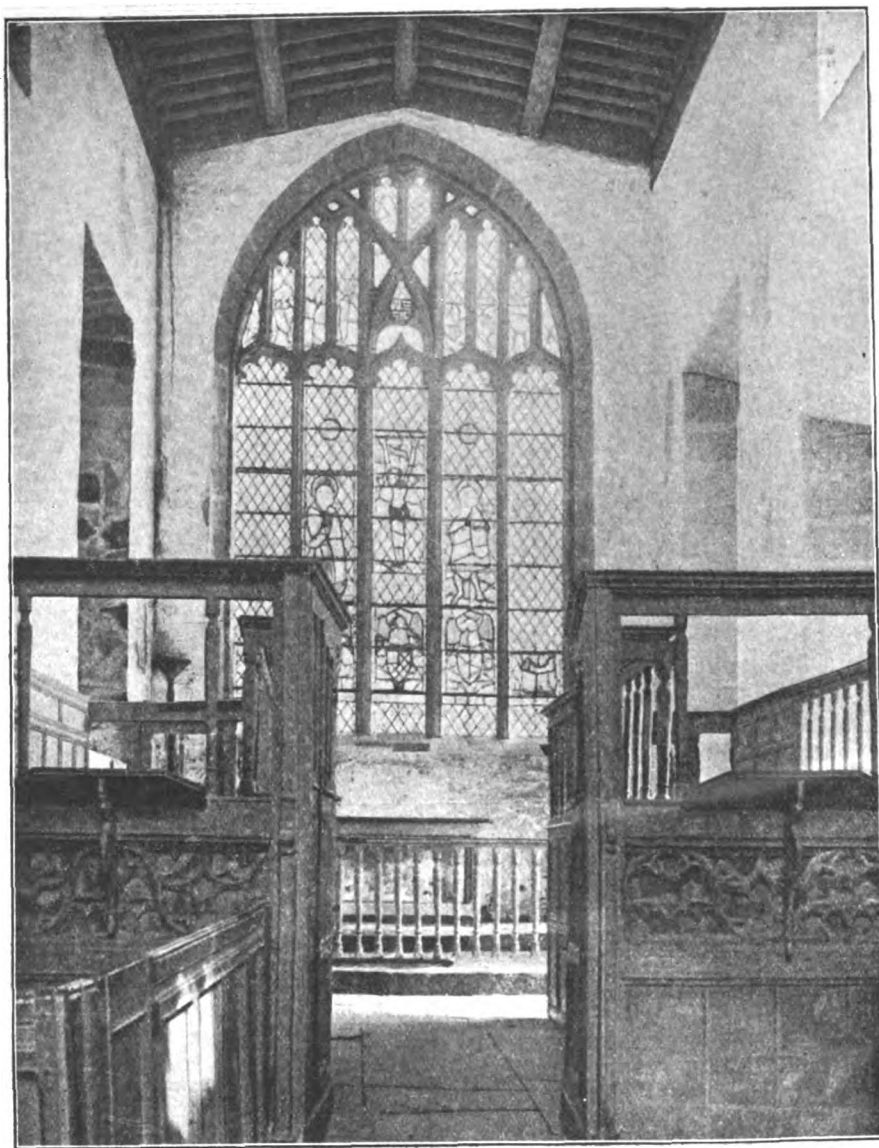
at once transfix the observer's attention. Two ancient yews are clipped, one to the figure of a peacock, the other to the form of a boar's head, these being the respective crests of Manners and Vernon.

Once inside the "needle's eye" doorway—a mere slit in the huge oaken gate—and the charm of Haddon displays itself. The mansion was built at various periods, and symbolises different styles of architecture. Here are fine specimens of the Norman, Early English, Decorative, and Jacobean periods. If we would see Haddon duplicated we need only visit Queen's College, Cambridge, which is frequently termed the "University Haddon." The locality of the Gatehouse is different; otherwise the similarity is almost perfect.

Formerly the Hall was rich in British and foreign armour and delicately carved oak furniture. The bulk has, however, been transferred to Belvoir Castle. The State bedroom contains a few elaborate examples of furniture and embroidery, the chief object of interest being the State bed on which the Virgin Queen slept when visiting her liege lord at Haddon. This same bed was later removed to Belvoir Castle, where George IV. laid his weary limbs thereon after a hard day with the Belvoir hounds. The bed is 14 feet 6 inches high, and is draped with green silk velvet and white satin. This is exquisitely embroidered with art-needlework of the fifteenth century. The dressing-table and mirror used by Elizabeth are still preserved, and round the walls hang the unique tapestry manufactured on the famous Gobelin looms in France. The illustrations on the tapestry represent the principal fables of Æsop.

The Norman chapel is particularly interesting. The antiquity of its chancel, nave, and side aisle is indubitable. Some fifteenth-century glass appears in the east window; this was installed as a thank-offering by Richard Vernon and his good wife Benedicta for a remarkable escape in the hunting field. A strange mishap came to this chapel in the early years of the nineteenth century. Several of the windows were filled with stained glass purchased abroad at a costly figure, and depicting sacred legends. Quite mysteriously, this glass was abstracted from the stone casings, leaving no trace of the marauder's hand. A tempting reward was offered throughout the country, and rumour was rife as to culprits in the north and south. But rumour was of no avail, and the property was never recovered. The font is preserved as of yore, when the infant Vernons were presented for baptism. The oaken pews with lofty backs, the huge vestment chest, the glint in the chancel, the double-decker pulpit all tell of days when the squire was screened from the peasant.

B



FAMILY PEWS AND ALTAR, THE CHAPEL, HADDON HALL.

Across the courtyard is the banqueting hall for which Haddon has a fame of its own. This room is twelve yards long and eight yards wide, and enjoyed wonderful popularity in the days of the Vernons. The minstrels' gallery over the entrance doorway provided the harp and horn, the bells and drums; and the minstrels coursed "sweet" music while the host, with his knights and châtelaines, dined sumptuously on the raised dais at the opposite end of the room. In the body of the hall the humbler repast of the retainers was spread on a broad table. These latter evidently enjoyed a rollicking time, as the iron handcuff, fastened on the entrance screen, beareth witness. If Joan failed to imbibe the quantity of liquor meted out for him, his wrist was gripped and locked in the "cuff," while the jug was emptied down his sleeve and into his doublet. The abstemious man was awkwardly fixed at these festive gatherings.

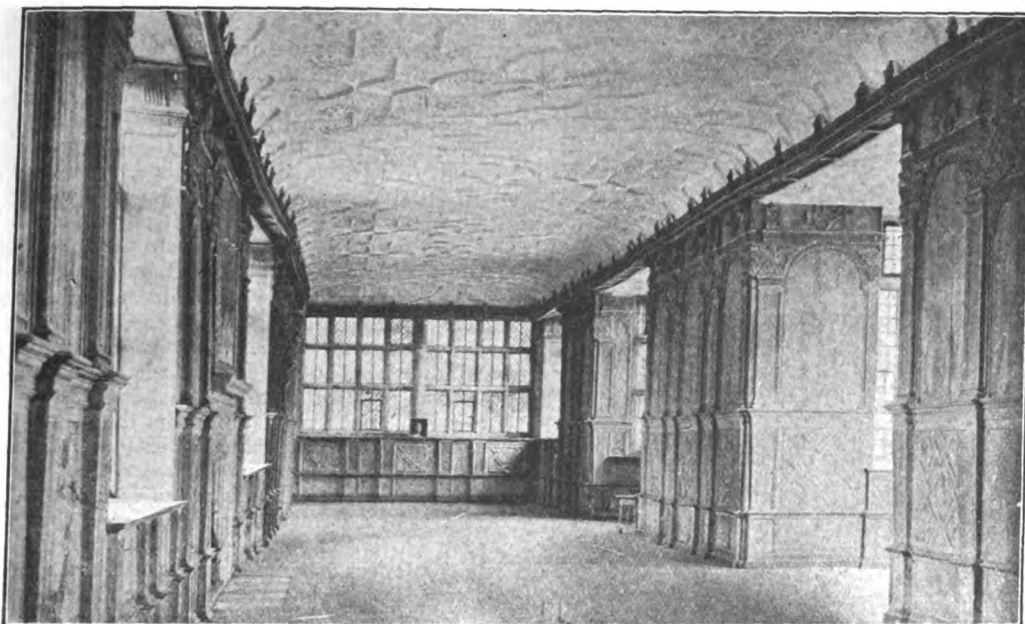
The oak wainscoting is adorned with captures of the chase—heads of deer and multi-pointed antlers. Here, also, are portraits in oil of the first Earl's "particular friends," the gamekeeper, the custodian of his wine cellar, a faithful forester, and a favourite horse. The drawing-room commands a charming view of the Derbyshire woodlands, and overlooks the garden where kings, queens, and princes promenaded in the days of the Tudors and Stuarts, and where to-day thousands of visitors, year by year, look on the past glories of Haddon. From this drawing-room a stairway of solid oak leads to the magnificent ball-room or long gallery. Thirty-three yards long and six yards wide, this apartment presented a fine spectacle when Sir George Vernon was celebrating his elder daughter's wedding. Its oak panelling was carved with a master hand, the ceiling is richly designed with geometric tracery, and the floor boards are said to have been cut from a single tree grown on the estate.

Near the extremity a door opens into a small ante-room,

its walls gracefully hung with antique paintings and embellished with a cornice of Manners and Vernon crests. It was this quiet ante-room that allured the sweet Dorothy on the night of her flight. When the festal gathering was in its full glamour, Dorothy sought the company of her elder sister Felice, who was to be married a few days hence to Sir Thomas Stanley, son of the Earl of Derby. Dorothy was tired, and begged leave to rest in the ante-room for a while. Her attachment to John Manners, son of the Earl of Rutland, had engaged the family's affairs. The match was strenuously opposed by Dorothy's father, who forbade his daughter to communicate with the young squire of Belvoir. From the wedding celebrations of Felice Vernon he was strictly banned, and Dorothy was suspiciously watched.

In that dim ante-room came Dorothy's opportunity. She was alone. Nought but a ponderous door, locked and bolted, separated her from her lover's arms. But love laughs at locksmiths. With all the might of her youth Dorothy shot the bars, flung back the door, bolted down the stone stairway, hurried across the garden lawn, and descended the Ladies' Steps to the open fields below. It was moonlight. The star-spangled firmament lent its friendly aid to Dorothy and her plot. Under the broad oak trees appeared the dim figures of her lover and his retainers. He sprang forth on her approach, locked his arm in hers, and conducted her over the pack-horse bridge. Under the trees horses were ready for immediate flight. Dorothy, warmly clad in her lover's great-coat, mounted a swift-footed steed, and the lovers, side by side, with a small retinue closely following, rode through the night to the confines of Leicestershire, where they were wedded the following morning.

At midnight the festivities at Haddon were hushed, and Felice darted to the ante-room for her sister Dorothy. The



BALL-ROOM, HADDON HALL.

room was vacant; the outer door stood ajar. Sir George Vernon was furious. Some "deed of darkness" had been perpetrated. Two days later a message arrived with the news of Dorothy's marriage and happiness. She craved her father's hand of pardon. Eventually this came, and Dorothy Vernon conveyed to the Manners family the beautiful home of her ancestors.

REINFORCED PILE FOUNDATIONS FOR BLAST-FURNACES.*

By ARMAND BAAR (LIEGE).

THE question of foundations often plays an important part in metallurgical works, where engineering skill requires to be exercised with special care, in view of the responsibilities which devolve upon the engineer when erecting heavy plant on a poor subsoil.

The frequency with which such poor subsoils occur in works is due to three causes:—

(1) The price of land often compels the utilisation of certain areas hitherto undeveloped owing to their unsuitability for building purposes.

(2) The need of a water supply for steam-engines often necessitates a works being installed close to a river, which, by the gradual shifting of its bed, may have undermined the adjoining areas.

(3) Lastly, the production of dump-heaps for the embankment of railway junctions requires constant filling up with debris, either as simple ash-shoots or by the tipping of slags from blast furnaces into mounds, which often attain a height of 65 feet, and upon which it is dangerous to instal machinery in motion, owing to the lack of stability of the foundations.

In Belgium in particular, as well as in the North of France and in the Grand Duchy of Luxemburg, a new system of foundations known as Franki piles is being employed with considerable success in most of the big works. The principle is, briefly, as follows: A conical perforator armed with a hard-steel point is driven into the ground by the help of a pile-driver. This perforator carries with it telescopic tubes which serve as tubing, and have an average diameter of 60 centimetres. The perforator thus passes through the hardest ground. An instance may be adduced at Ougrée, where the process has been applied on a slag tip 30 feet in height, and consisting entirely of slag blocks from a basic steelworks of a cubical capacity of $2\frac{1}{2}$ cubic metres each. Reference may also be made to instances where the ground has been exceedingly soft and highly water-bearing, as at the Courrières collieries, where the soil consists of peat and water-bearing sands, and where three bridges have been erected. The object of the system is to bore through the overlying ground until a solid foundation of clay or gravel is encountered.

The perforator is then withdrawn and replaced by concrete, which is rammed down by degrees as the tubes (commencing with the lowest) are withdrawn. By means of the ram the concrete is compressed so as to press against the sides of the borehole and to consolidate them, until ultimately the bottom is enlarged and a cone obtained, pressing against the side walls of the cavity.

Amongst applications of this process which may be referred to, one of the most interesting was the strengthening of No. 2 blast-furnace at the Esch-sur-Alzette works of the Société Anonyme des Aciéries Réunies de Burbach-Eich-Dudelange in the Grand Duchy of Luxemburg, and its supersession by a furnace of twice the size.

The masonry batter of this furnace rested on gravel 14 yards below the level of the soil, and the ground had been packed up entirely with goaf of an inferior description. Several break-outs from the furnace had, however, penetrated the packing at different times, and it was feared that lumps of metal might be encountered at several points, which actually happened later.

Forty-one piles were driven, each calculated to sustain a load of 70 tons, and in order that the concrete arch, which had to rest simultaneously on the batter and on the pile itself, should distribute its load uniformly, there was placed, above the masonry, a layer of granulated crystalline slag 4 in. thick, mixed with a little cement, so that if, under pressure, the fresh cement should spread, any further increase in the load would bear upon the crystalline slag and further compress the latter by crushing it, after which the injection of water at the bottom would finally mortar the arch to the masonry, by the action of the cement originally introduced as an addition, with the dust of the powdered slag.

The furnace is in full working order, and the method of construction has been perfectly successful, and shows no sign of settlement.

Another interesting application of Franki piles was made in erecting the rolling-mills of the Ougrée Marihay Company.

On a tip composed entirely of slag blocks to a height of 30 feet, resting on 15 feet of bad subsoil, these mills work 35 feet above the level of the Meuse gravels. The whole plant, mills, buildings, gas-producers, &c., rest on 180 piles which were driven through this thick layer of slag. Not a single pile had to be left unfinished during boring, and the whole of the work proceeded without interruption.

The Athus-Grivegnée Company has erected a similar plant at Athus, under analogous conditions, but in this instance the piles are only 30 feet long. Franki piles have also been most satisfactorily employed as foundations for gas-engines at the works of the Société Métallurgique de la Basse Loire, at Trignac (St. Nazaire), at the Aciéries de Micheville in Meurthe-et-Moselle, and at the works of the Société Anonyme des Hauts Fourneaux de la Chiers at Longwy.

* Read before the Iron and Steel Institute.



STAIR AND GATES FROM BANQUETING-HALL, HADDON.

It will also be interesting to point out that before carrying out the foundations of the Ougrée Marihay rolling-mill plant the Company carried out a test on a Franki pile which was loaded with a charge of 473 tons.

The Cockerill Company of Seraing have made many applications of the system in different plants—amongst others with a gasometer of 50,000 cubic metres capacity; and at the present time the number of piles driven for this company—the first to make a trial of this system—has exceeded 1,000.

ARCHITECTURE OF LONDON HIGHWAYS.

By VIATOR.

X.—A ROVING ITINERARY.

"The ball no question makes of ayes or noes
But here or there, as strikes the player, goes.
And he who tossed you down upon the field—
He knows about it all—he knows—he knows."

IN some of our walks through our dearly-loved city—and more particularly our dearly-loved square mile of antiquity—we have in very truth pursued a devious course, as far removed from the business methods of daily routine, as the mode of locomotion of to-day differs from that of a century ago. And we must ask our readers to go here or there, just as we strike; for they may rest assured that Viator "knows about it all—he knows—he knows."

There is this to be remembered in regard to a big city; that, however far afield in it we may rove, and, however deviously we may wander, there are ever the landmarks and beacons to guide us back into our course whenever we please. Here, in our vast metropolis, we see the commanding dome of our eastern-situated Cathedral, St. Paul's; there, the towering and inspiring campanile of the western-situated Cathedral, erected by the Roman Catholics at Westminster. In another direction is the tower of London University (erstwhile and to a limited extent still known as the Imperial Institute), and Sir Gilbert Scott's noble spire of St. Mary Abbott's Church, Kensington, is a landmark much loved by us.

And many more features there are—gradually and increasingly becoming landmarks, as our walks about London and our knowledge of its buildings, multiply. American street-nomenclature too may have its merits, and may render such landmarks unnecessary; but with intense fervour we offer our thanks, that we are saved from such

pedagogical treatment in England, and, above all, in London.

And now we purpose once again guiding our readers along an unstudied route through the old City; to see with our eyes some few of the buildings that have hitherto escaped our notice, and would have been likely to be overlooked, however sustained our quiet strolls may prove to be. Though we will make no promises, as we like, we will be orderly and slow; as we like, we will with Ariel "put a girdle round about the earth" itself in forty minutes. But no girdle for us to-day; let us see these few buildings—witnesses of different centuries of London's growth.

We suppose that every child, every adult knows that the Great Fire of London commenced in Pudding Lane and ended at Pye's Corner. The latter thoroughfare lies not within our ken, but Pudding Lane has been familiar to our eyes some score of years. And hard by this lane, on Fish Street Hill, 202 feet distant from the scene of the outbreak, is erected Sir Christopher Wren's artistic memorial of a disaster which was no disaster, but an undisguised blessing, carrying off amidst the roar of its flames the last remnants of a devastating plague—and thank God! the last plague which has victimised London. The Monument is in height 202 feet (to correspond, as it has been said, with its distance from the baker's shop, where the outbreak occurred); it cost £15,000, and took six years in building, its birth anniversary for the 245th occasion having transpired two years ago about the time of the Coronation. From an architectural standpoint the Monument is most to be admired for its fine carved and inscribed pedestal, whence rises a Roman Doric column enclosing a spiral staircase, and surmounted by an open gallery. The capital of the column supports a podium and a brazen urn, whose gilded flames, supposed to be reminiscent of the conflagration, have never appealed to us with any force. The proportions of the Monument satisfy us, and the general effect is good; the carved western panel of the pedestal merits close inspection, showing the City rising phoenix-like from its ashes; this bird of legend appears in the panel, which also introduces to us a veritable Carolus Secundus Rex Angliæ, &c., in toga virilis. That beast of legend, the City griffin, also appears upon the Monument, whilst the north and south panels describe in finely-chiselled lettering in the Latin tongue the destruction and reconstruction of London City.

The memorial fire issuing from an urn is a feature also introduced by Wren upon the tower of St. Magnus the Martyr not far distant; but this church, despite its fine carved oak (the work of Grinling Gibbons), lies not within our consideration to-day. We must direct our steps to view another monument, situated at the junction of Cannon Street, Eastcheap, Gracechurch Street, and King William Street, the latter named after our Sailor King of the nineteenth century, and it is his effigy that appears here mounted on a lofty pedestal. It is one of the many uninspired statues which occupy the streets of London without adorning them, though the pedestal is not without merit, and the statue itself is worthy of approval, in so far as the raiment is of the day and not that of the Roman Empire; nor does the pose lack dignity. Contrast this with the statue of Jacobus Secundus Rex Angliæ, &c., in St. James's Park, both in regard to raiment and pose, and the reason for our comparative satisfaction is at once made manifest. William IV., however, will not do after Charles I. (we refer to the London statues, not to the men themselves), that sad-eyed monarch who, from his elevated position at Charing Cross gazes towards the place of his execution in Whitehall. But our feet experience no lingering sensation near King William's effigy. We will merely record (before passing onward) that here stood the Boar's Head Tavern, made famous by Shakespeare. And now we will stroll through Eastcheap and thence deviously into Fenchurch Street, resisting a natural inclination to inspect the churches of All Hallows Barking, and St. Olave's, Hart Street (though the latter's association with Samuel Pepys and his pretty Huguenot girl-wife should assuredly make us divert our steps for the few hundred yards; but it is not so ordained). Instead, we will turn our gaze upon the London Tavern in Fenchurch Street; the present house was erected in 1877, but the establishment dates much further back, for from a ribbon-inscription carved over the entrance we learn that "Queen Elizabeth dined here on her release from the Tower, May 17, 1554"; her statue appears on the circular corner at the second floor level, with the City arms beneath. The tavern is of Tudor design in red brick with stone dressings; it consists of basement and four other floors. Henry VIII.'s bust and monogram adorn the en-

trance, and altogether it is a pleasant façade, plentifully ornamented with architectural and sculptural details; but the sky-line is flat, which is not in keeping with the style of architecture.

The next building to receive attention is one, designed by Mr. T. E. Collcutt, for Lloyd's Register of British and Foreign Shipping. It is a three-storey Renaissance stone block, with the ground-storey stonework plain and unrusticated. The columns and shafts are heavily blocked out, a treatment peculiarly vicious in complexion in the case of this building; what matters it that the *raison d'être* is in order to obtain good cast shadows? Such treatment is contrary to the canons of architecture, and is besides inartistic in the highest degree, as here shown. The façade is well proportioned, and the figures and carved panelling are striking. The domed cupola, with its full-rigged ship finial weather-vane, is an exceedingly happy feature.

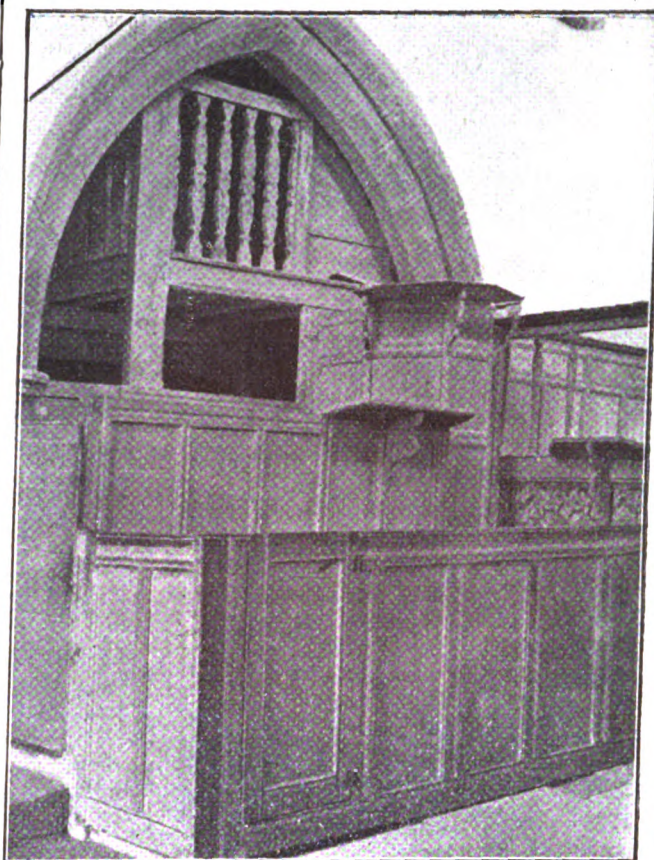
In the course of our peregrinations, we encounter the halls of various Worshipful Companies of the City Guilds; to-day there are three of these buildings, and here in Fenchurch Street is Ironmongers' Hall, a four-storey stone block, well proportioned and well designed, with rusticated ground storey, the central width of the façade being slightly projected, and surmounted by a good pediment, flanked upon the wings by balustrading. Ionic pilasters adorn this central portion, running colossally through the first and second floors. The semicircular-arched entrance aids in the good effect, and the building is one which arrests the attention by reason of its quietly admirable qualities.

How many of us pass by the quaint little church of St. Ethelburga, Bishopsgate, without bestowing upon it a glance! And yet its very quaintness should ensure against neglect. The way, too, in which the funny little shops nestle against its plain stucco façade is truly continental. There is nothing from the architectural standpoint in the appearance of St. Ethelburga's to gain applause; it is a slight, unpretentious, unimportant Gothic building, one of the smallest of London's churches, and one untouched, we believe, by the devastating flames of the Great Fire. It has a little squat wooden lantern and lead-covered belfry, that has in it no suggestion of Gothic. The structure is a monument of plainness, redeemed from insignificance by reason of its unique appeal to the glances of the wayfarer. *En passant*, we may note that interest attaches to the building at the junction of Wormwood and Bishopsgate Streets, merely on account of the inscribed panel, bearing witness to this being the site of the former City gate. The adjoining Watch-house, too, though absolutely new, is yet redolent of the one recently demolished and so possesses a spurious interest.

From old to new—for this is London all over. We leave our inspection of old and quaint St. Ethelburga's; we spend no time in going aside to regard old and beautiful St. Helen's Church, but we find our staying-point at the Bishopsgate Institute, beyond Dirty Dick's establishment, beyond Petticoat Lane (now transformed into Middlesex Street) and very near to Norton Folgate. The Institute was designed by Mr. Harrison Townsend, and is a pleasant piece of Romanesque Revival in buff terra-cotta. We do not admire the pulvinated red shafts at the entrance, which is itself an effective, important, semicircular-arched feature. The ornamentation is good and of general application; the flanking tourelles are of polygonal form, and are connected across the intervening roof by a pierced terra-cotta apron just above the eaves.

Leaving Bishopsgate Street by a slight deviation, we are brought into Old Broad Street, and there we will direct attention to that very tame building, the London Stock Exchange, for its importance in the scheme of affairs demands its inclusion in our itinerary. Neither of the façades in Old Broad Street or Throgmorton Street are admirable, and the only practical explanation can be that the committee of the Exchange saw no sense in wasting good Art upon a building facing narrow thoroughfares and unappreciative spectators.

Nor does the neighbouring Drapers' Hall gain more than our qualified approval. It is true that its entrance section in Throgmorton Avenue is not unpleasant in its Queen Anne garb, but there is no such pleasure in regarding this building as appertains to Carpenters' Hall at the other end of the Avenue. This is a stone-faced building of three storeys in Renaissance design, well proportioned and well detailed. The lower storeys are effectively treated as a surbase to the first floor, which is columniated with the Corinthian Order and surmounted by a good entablature. There is a continuous run of panelling between the capitals of the columns, decorated with carved swags, and the whole block is sur-



PULPIT AND READING DESK, THE CHAPEL, HADDON HALL.

mounted by balustrading and urns. The elaborated entrance is somewhat narrow in effect, accentuated by the far-projecting circular balcony over. The Company's arms are presented on a shield over the entrance, and there is a series of portrait busts carved on the keystones of the ground-storey windows. The façade on London Wall is in sympathy with the entrance front.

Finsbury Circus is in process of transformation. The old quiet domestic terrace quadrants are giving place to mammoth office blocks. Salisbury House, which occupies the south-west quadrant, is sufficiently good. Messrs. Davis & Emanuel, the architects, have here produced a block homogeneous and quietly architectural, whose stone façades will weather satisfactorily, and prove not unpleasing in the years to come. But the south-eastern block is far otherwise, and we regard it with no degree of pleasure in its stony fussiness and disregard of architectural ethics.

Going further, into Finsbury Square, we find a building designed by Mr. John Belcher, R.A., and known as London House; it possesses the true Belcher timbre, and certainly decorates the Square, but we prefer the same architect's block in Finsbury Pavement near by. We refer to Electra House, the offices of the Eastern Telegraph Company. It is an imposing Renaissance stone block with granite substructure, and its proportions and architecture are pleasing. The ornament, too, is well distributed.

But leaving Classic Renaissance, we will regard some buildings where Gothic Renaissance has been employed. And, firstly, there is a block near by in Moorgate Street, the offices of the Metropolitan Life Assurance Society, designed by Messrs. Aston Webb & Ingress Bell many years ago. Though not pleasing at a first glance, yet the building improves upon acquaintance. The earliest effect of superabundant ornament, even of fussiness, gives place to a conviction that the architects felt the value of plain surface. We cannot explain the cause of this alteration in criticism; we can merely record it. The offices are five storeys in height, with the windows well recessed in the openings. The angle displays a distinct concentration of ornament, where the oriel takes a prominent place and the unusual treatment of the support over the entrance is worthy of note. The gargoyles, altogether absurd in modern work, are here artistically displeasing.

But there is not even a temporary sensation of dissatisfaction when we regard the congeries of buildings constituting the home and offices of the City Corporation, as seen from Basinghall Street. The various architects concerned seem to



STATE BED IN WHICH THE VIRGIN QUEEN SLEPT AT HADDON. The cradle was used for the first Earl of Rutland.

have been steeped in the spirit of mediævalism, and, though an air of antiquity is not yet in evidence, we can provision what the effect will be in years still unengendered in the womb of Time. The polygonal Council Chamber is particularly pleasing in its Perpendicular Gothic dress. The lead-covered dome and fleche are of satisfying proportions, and the numerous and vari-sized windows all aid in the architectural effect. The library and museum block is also one to be approved, and it is only when we enter Guildhall Yard and regard the narrow frontage of the Guildhall that we become conscious of dissatisfaction with what is presented to the gaze. George Dance doubtless did his best in the west wing here, and Mr. Perks (the present surveyor) has merely imitated Dance in the quite recent east wing; but the net result we do not like.

Close by, in Three Nuns Court, we come across "Ye Olde Axe Tavern," with a swinging sign, pendant from a cast-iron bracket. The building is of the plainest, the interest arising solely from the sign, whereon are portrayed innumerable axes, the date 1698, and the motto "In hoc signo mea spes."

We are next confronted by a church which does not lack in interest, but we are feign to confess our belief that the parishioners of St. Mary the Virgin, Aldermanbury, must have grudged their shekels for the rebuilding of their parish church after the Great Fire. Doubtless their private losses were not slight, seeing that "the estimated loss of property was eleven millions sterling," though this was accompanied by only eight fatalities (Dugdale). However this may be, the church possesses no architectural interest, save in the very slight remains of the pre-existing belfry tower, as seen from within. What induces our pilgrimage here is (1) to note the memorial erected to Hemminge and Condell, friends and fellow-actors of Shakespeare, and memorable for the production of the noted first folio of his works. These actors lived for many years in this parish, and were buried here. The bust of the Bard of Avon adorning the monument is good and appropriate. (2) We would call attention to the burial by the altar of another parishioner, viz. Judge Jeffreys, of Bloody Assize notoriety; there is a commemorative tablet on the south wall near the entrance. The only pretence of architectural design (and it is a very poor one) is on the east end.

One other building only will we describe in our present tour, and that is commemorative of a period slightly ante-

dating Jeffrey's deeds of ill fame. The nonjuring ministers of A.D. 1662 formed a large company of martyrs, and their quiet, untheatrical proceedings are commemorated in the Memorial Hall in Farringdon Street, erected in 1872 from the designs of Messrs. J. Tarring & Son. The style is mostly Early English Gothic, carried out in rubble masonry with sparse ashlar dressings as a relief. This is a true piece of architectural design and nicely proportioned, though the massing is less satisfactory, resulting in a somewhat lopsided appearance.

But we like to think that such a good piece of work lies along the route of our daily walk between railway station and offices, and situated so near to the latter that we seem to share in the benefit conferred upon the City by the very presence of such a building. And now, after a last, lingering glance directed towards this martyrs' memorial, we enter our offices in Ludgate Circus, and bid adieu to our readers.

RECENT PROGRESS IN GAS FIRE SCIENCE.*

By Mr. H. JAMES YATES, F.C.S., M.I.Mech.E.

THE coal fire is a heating contrivance which, however cheerful in appearance, does not, in its nature, make for great economy in the use of fuel. Yet the motive that gave rise to the introduction of gas-heating as a substitute for coal-heating was not economy, but convenience; the question of economy came later. Considerations of hygiene and of greater thermal efficiency have come last in order, and all three are now undergoing continual discussion, experiment, and development.

The earliest gas fire, being intended to do the work of a coal fire, under conditions of greater convenience, was an imitation of the coal fire. This contrivance, whatever its convenience, resembled its prototype, the coal fire, in losing much of its heat up the flue, and in yielding only an irregular and inadequate return in the form of radiant heat from the fuel consumed. The improper way in which the flame impinged upon the refractory material also greatly impaired the completeness of combustion, a fact which not only involved waste of fuel, but was liable to occasion an escape of harmful combustion-products into the room, especially when the chimney draught was poor, or the flue outlet of the gas fire badly constructed.

The gas-fire idea having been embodied in these early crude forms, it was gradually realised that on such a basis gas was no match for coal in point of cost, and the question of economising devices came to the front. The manifestly great flue losses led to the heat-economising efforts being all directed towards delaying the escape of the combustion-products until they should have communicated as large a proportion as possible of their sensible heat to the body of the stove, to be afterwards transmitted into the apartment in the form of hot-air currents from the stove body. In other words, these early efforts in gas-fire economy aimed at concentrating on convected heat.

A shape which these convection devices usually took was the forming of chambers in extended flues within the stove body. But the heat economy thus realised was accompanied by a bad physiological effect. Anybody entering a room so heated could generally "smell the gas fire," as it was expressed, principally owing to the escape of products of combustion into the room, through faulty construction of the stove, and to the burning of dust by contact with the overheated "convecting" chambers of the stove. The various drawbacks engendered a widespread prejudice among the public and the medical profession against gas fires.

It was the personal discomfort which such stoves occasioned to myself that led me to take up the matter and endeavour to devise a new type of gas fire free from these defects. Even after my work in this direction had made substantial progress, it was most difficult to get the public to realise that such troubles were not inherent in the gas fire as such, but that they were merely evils inseparable from the mistaken practice of "high-temperature convection" in moderate-sized apartments, whatever the source of heat. It was not realised that nothing can arise from the combustion of coal gas that does not also arise from the combustion of coal, and that, therefore, any ill-effects associated with the use of the earlier crude gas fires cannot be rightly ascribed to the nature of gas heating, but must be due to some radical fault in the methods of applying it.

This being so, the only way to remove the popular prejudice was to remove its cause. First of all, it was clear that the temperature of the convection currents ought to be

* Abstract of a Paper read before the British Association.

reduced so as to effect a corresponding reduction in the moisture-absorbing capacity of the air of the room. It then occurred to me that the old idea of enhancing the total heating efficiency of the fire by increasing the "convected" heat effect in the manner described was a mischievous one and the source of all the trouble; and that the true remedy must be sought for in increasing the "radiant efficiency" of the fire to the maximum possible with consequent decrease in the amount of "convected" heat.

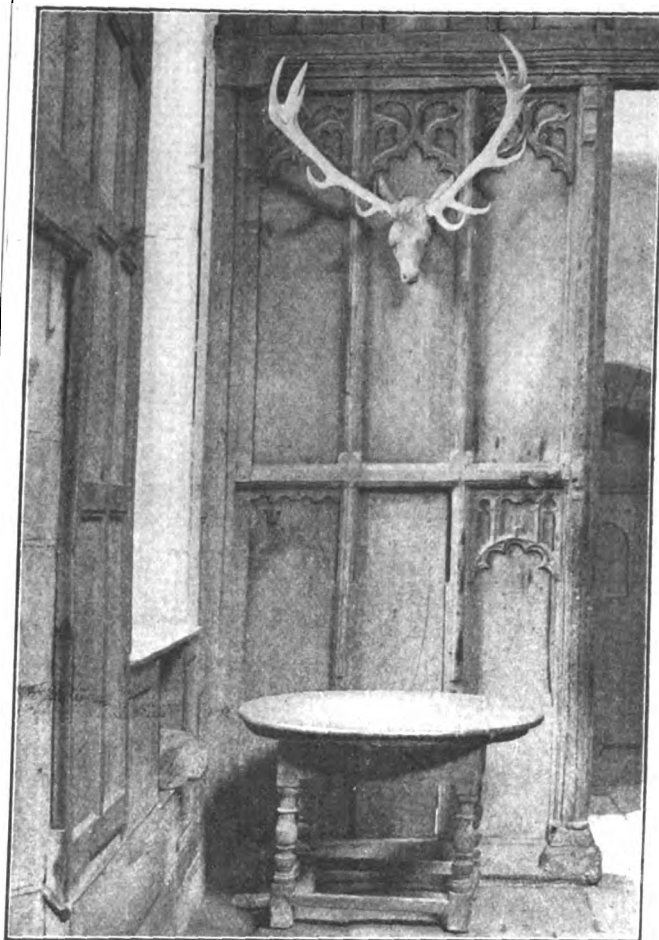
The known advantage of radiant heat being that it warms the walls, the furniture, and the occupants of the room rather than its atmosphere, the problem was how to increase efficiency in the direction of radiation so as to compensate, both in heating power and in economy, for the reduction in the temperature of the convection currents. The gas fire, which hitherto has been a haphazard evolution from the coal fire, now became the subject of a reasoned and drastic revolution. The convection chambers were dispensed with. The deep fire-chambers became a shallow space in the front of the apparatus, its depth only that of one piece of refractory material. The erratic arrangement of fireclay lumps was superseded by placing two or three such pieces one above the other exactly over the flame, so as to form an envelope for it. A little later a more marked step in the evolution of the new radiating fire consisted in joining the two or three fireclay pieces into one, and thus making the fire front consist of a series of hollow fireclay columns (now known as radiants), perforated in a design expressly contrived to promote uniform heating of the column throughout, and with each flame rising into the cavity of its radiant. Care was taken to prevent any impingement on the inner cone of the flame; by this means, and also by using a correctly designed burner, and making due provision for the proportionment of the gas and air supplies, perfect combustion was ensured. A further important improvement was the dispensing with the cast-iron front bars hitherto used to retain the loose fireclay lumps, and the replacing of these bars by one slight horizontal rod. The effect of these radical changes has been that the greater proportion of the energy developed by the combustion of the gas around and in contact with the radiants is transmitted into the apartment as radiant heat. This radiant heat quickly makes its warming effect felt by the occupants; yet, inasmuch as it passes through the air without sensibly warming it, the discomforts formerly occasioned by the now discarded "convection" methods are at an end. The walls and the objects in the room, becoming warmed by absorbed radiant heat, no longer abstract heat from the occupants, and, further, they gradually warm the air to a moderate degree by convection currents which, being necessarily at a low temperature, do not reproduce the former excessive moisture-absorbing condition of the air.

Although the earlier types of gas fire may have made their heating effect more quickly apparent, yet in the gas fires of to-day the primary convection is also doing its work from the first, though in a less conspicuous and more healthful way. In this way radiation has taken the place of convection as the mode of heat-transference principally aimed at in gas-fire design.

Having thus traced the evolution of the modern gas fire, I come next to that on which the modern gas fire so largely depends—viz., radiation, to the problem of increasing which much research has been devoted.

Ten years ago even the best deep fires did not afford more than 30 to 33 per cent. of the net heat of combustion of the gas in the form of radiant energy. In the effort to secure increased radiation (by which I mean a higher percentage of the heat developed by the combustion of a given amount of gas delivered as radiant energy) it has been found, as was to be anticipated, that to advance from these low figures to 45 per cent. is much more easy than to make a further increase above 45 per cent. The adoption of the shallow-fire principle, and the dispensing with the front bars, was responsible for an increase from 30 per cent. to somewhere about 42 per cent. From that point, by attention to the perfecting of the design and proportion of the burners and back bricks, and—most important of all—that of the radiants, we have been successful in further raising this figure to 48-50 per cent., and indeed, in some instances, to as high as 55 per cent.

From the first gas fires had been made considerably smaller in width than the average coal fire, and when the new shallow-fronted radiation gas fire had been evolved there still remained a general tendency to keep these fires down to a similar narrow width. I became convinced, however, that if gas fires were to take the place of coal fires for heating the largest domestic apartments equally well as the



CORNER OF BANQUETING-HALL, HADDON.

smallest, it would be necessary that gas fires should be made available having a fire-space as wide as that of the coal fire. This development involved constructional problems which were only solved after considerable experiment; the result has been that gas fires of the new type are now made as wide as 17 inches and 21 inches, fires of that size being capable of heating rooms up to a cubical content of at least 4,000 cubic feet.

The problem of total heating efficiency is, however, not the only one which makers of gas fires have to solve; the equally important question of ventilating effect must also be considered, for a properly constructed gas fire should effectively ventilate as well as heat an apartment. It is obvious that no fire could be considered as hygienically perfect which, when connected with a chimney flue in the ordinary way, and subjected to a moderate chimney draught, allows any products of combustion to escape into the room; but provided that this elementary hygienic requirement is fulfilled, the question of "hygienic efficiency" resolves itself into the amount of excess air over and above that required for combustion which can be drawn up the flue per cubic foot of gas burned, when the fire is so connected and fixed. There is obviously no object served in testing or discussing "hygienic efficiency" or "ventilating effect" except in relation to conditions of ordinary chimney draught, because no gas fire ought ever to be used except it be connected with a chimney or flue leading into the outside atmosphere.

It is not difficult to design and proportion the flue vent and the canopy of a gas fire so as to ensure the drawing up the flue of a large volume of air, thus producing good ventilation. The real difficulty is to avoid drawing this large excess of air over the upper portion of the "radiants," thus cooling them and unnecessarily diminishing the radiant efficiency of the fire. In other words, whereas it is comparatively easy to achieve "ventilation" at the expense of "radiant efficiency," a really scientifically constructed fire should ensure an equally good "ventilation" without sacrifice of radiant efficiency, which, although not so easy, is by no means an impossible matter.

In this connection my own researches have convinced me of the importance of preserving a certain adequate vertical distance between the top of the radiants and the bottom of



DOROTHY VERNON'S STAIR, HADDON HALL.

the canopy of a gas fire, so as to avoid drawing the induced "ventilating" air over the upper portion of the radiants.

In concluding, it should be stated that the entire change in the construction principle of gas fires which has just been described has led to an equally great change in the attitude of the medical profession and the public towards the use of gas for heating. As a result there are to-day upwards of 350,000 gas fires in use in London alone.

THE NATIONAL GAS EXHIBITION.

It is not a little curious that during its first hundred years the gas industry never organised a national exhibition. That anomaly became a thing of the past when the Lord Mayor of London opened on Wednesday last, October 1, the National Gas Congress and Exhibition at the International Exhibition Halls, Shepherd's Bush, W. The time is appropriate, inasmuch as the industry entered upon its second century in 1912, and now in 1913 the Institution of Gas Engineers is celebrating its jubilee. In 1810 the first English company for manufacturing gas was formed in London, and an Act of Parliament was obtained for the Gas-Light and Coke Company. In 1813 Westminster Bridge was lighted with gas. Within ten years or so it was adopted for public lighting by most of the principal towns in the kingdom. The householder, however, regarded the new illuminant with considerable suspicion for a long time. Both gas manufacturer and gas fitter effected such improvements that all hostility was gradually worn down. After lighting, the manufacturer turned his attention to heating, cooking, engines, and collateral activities of huge value. During the last quarter of the nineteenth century a revolution was effected in the industry. By the beginning of the present century the incandescent mantle and the Bunsen burner were yielding six times the light produced in 1875 by the consumption of an equal volume of gas. In the British Isles alone the industry now employs capital to the amount of £126,000,000 and eighty-five thousand men.

The object of the present exhibition is to show the public that "in every sphere of man's or woman's activity—be it

domestic, educational, industrial, commercial, or communal—gas can play the part of a useful and faithful servant, and that its increasing use conduces to the health, comfort, and convenience of the community." The organisers have received the support of the majority of the leading gas undertakings and manufacturers. But that support has been subordinated to a co-ordinated scheme. The attendants, we understand, have no connection with the firms whose goods are exhibited. This should ensure the information given being more unbiased than that usually offered. In addition, the British Commercial Gas Association have arranged an Inquiry Bureau where visitors may bring their difficulties.

The Exhibition Halls, which have been most excellently arranged by Messrs. Warwick & Hall, F.F.R.I.B.A., are entered from the Uxbridge Road, and they immediately adjoin the Shepherd's Bush station of the Tube Railway. The entrance hall and lounge will not cause much delay unless it be to study the four different types of radiators—a form of heating that has much to commend it. Next comes the Industrial Hall.

It is No. 3 (Domestic) Hall which will appeal most particularly to architects, builders, and the public, for it shows how gas can best be applied to the home. There are separate sections representing a country cottage, a large town house, a smaller town house, a worker's flat, model tenement, and a studio. The latter is put forward as a typical self-contained dwelling for any bachelor worker, and the following gas contrivances by various manufacturers are introduced into it: An inverted one-light bracket, two special stand lamps, two three-light pendants, a cigar lighter, two fires, a small geyser, and a small cooker. A neat contrivance known as a "discount meter" may be noticed attached to the supply pipe of some of the fires in this hall. This enables the occupant of the room to pay that particular gas-fire bill as and when the gas is actually consumed. Each room is fitted up with a strict regard for its purpose, and affords a series of glimpses into those ideal rooms which we all sigh for. This Domestic Hall is a most entertaining place, and is the more so to those who will conscientiously follow the very persuasive catalogue—indeed, the first act of a visitor should be to purchase, read, and digest the clear and instructive accounts contained therein.

The Engineering and Miscellaneous Hall, No. 4, also calls for close attention. The sections illustrate such important things as wallpapers and illumination, hospital appliances, church lighting and heating, and a model office. There is also a representative display of various types of gas fires. The exhibition closes on November 1. Throughout the Congress month conferences will be arranged between the administrators of gas undertakings and the educational, medical, and sanitary authorities, employers of labour and social economists. The conferences include one on Smoke Abatement, to discuss the use of gas for fuel in relation to the problem of the smoke nuisance; one on Food and Cookery; a conference of persons interested in social and economic questions on the Economics of the Home, to discuss the use of gas in relation to (a) the artisan's weekly budget; (b) the economics of housekeeping for the middle classes; (c) the dearth of domestic servants; (d) the furnishing and equipment of the home. There will also be a conference of Medical and Sanitary Authorities to discuss the hygienic aspect of gas for lighting, heating, cooking, and ventilation; a conference of Educational Authorities, to discuss the lighting, heating, and ventilation of schools, the physical and mental disadvantages of scientific illumination; the teaching of cooking in schools; a conference of Manufacturers, to discuss the lighting, heating, and ventilation of factories and workshops, offices and other places of business, the economic value of adequate illumination, the use of gas as a fuel for industrial purposes, and a conference on the Science of Illumination, to discuss the principles of scientific illumination in their relation to the use of gas for lighting.

The exhibition is arranged in seven inter-communicating halls representing half a mile of buildings. The total exclusion of electricity necessitated the laying of two and a half miles of gas main and twenty-five miles of iron piping for light, heat, and power.

MR. W. D. CAROE has been elected Master of the Plumbers' Company, in succession to Alderman Sir T. Vezey Strong.

FURNITURE.*

By W. A. S. BENSON, A. & C.

THE term "furniture" in the wider signification includes many things which can more conveniently be treated under other headings. Curtains, cushions, and carpets may well be predominant features in furnishing an interior, but the aesthetics of these and other branches of upholstery fall naturally into the discussion of textiles, and their design ranks primarily as a case of surface decoration; whereas, in the specialised sense, furniture design is a matter of solid geometry, and in the first place is mainly concerned with the manipulation of one particular class of material.

It is, in fact, a branch of the great art of working in wood, though, indeed, certain applications of metal work are frequent and often prominent features, and may even take the principal or sole part in the structure, while numerous secondary materials occasionally require consideration.

In brief, while the furnishing of an interior as a complete work of art requires the consideration of various distinct branches of design, the discussion of furniture as one of these subsidiary crafts deals in the main with joinery and its specialised derivation, cabinet-making.

Now, the elementary fact about the material which these crafts treat is that, while the lengths of logs or planks may for this purpose be regarded as unlimited, the width and thickness are relatively small. Again, though the strength of timber lengthwise the grain is enormous and its elasticity great, across the grain it is easily rent or broken; and, further, while the length of a stick scarcely varies with climatic changes, the dimensions across the grain shrink and warp in drying, and swell again with every access of moisture in an incalculable manner.

These material limitations have determined the practice of joinery, which has grown out of the endeavour to utilise fully the longitudinal strength of wood and to neutralise as far as possible its weakness and instability across the grain.

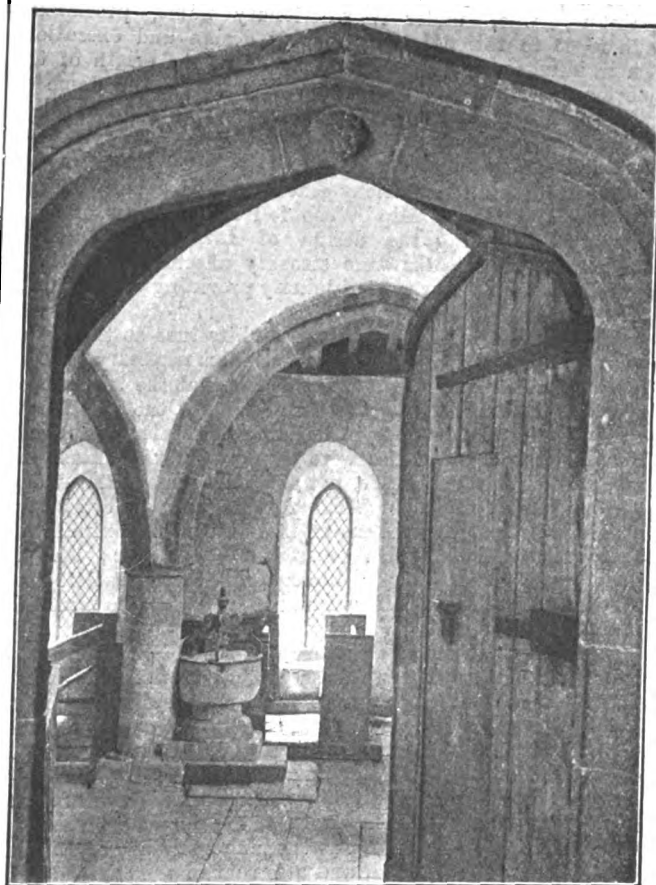
With this intention has arisen the characteristic expedient of joinery, framed and panelled structure, familiar in the common form of door, wherein comparatively narrow pieces are mortised together into a rectangular framework with the interspaces filled by thinner panels left free to expand or contract in grooves in the framing.

The line of demarcation between joinery and cabinet-making is not very precise. It was the use of imported hard woods that in England led to the differentiation between the trades and culminated in the substitution of mahogany for the native oak, since the American wood proved less lively, held the glue better, and, once properly seasoned and oil-polished, shrank and twisted less than any other wood. This led to the practice of veneering, whereby wood is cut in thin slices in such relation to the grain as to show the most beautiful figure and glued to a backing cut entirely with regard to strength and stability. It is thus analogous to the architectural use of marble or mosaic as surface adornment, and manifestly is dependent for success upon the inert nature of its foundation. This succession of oak passing through an intermediate stage of walnut to solid mahogany, and finally to mahogany enriched with surface veneer, is set out in all treatises on the subject. The accompanying changes resulting from varying social habits are usually less clearly told.

But it is the interaction of such technical conditions as the introduction of new materials or the improvement in tools and methods of the workshop, with the practical requirements of the users on the one hand and their decorative and architectural surroundings on the other, which determines the rise of craft traditions and their progressive modification as one condition or another of craftsmanship. of function, or of taste, is varied; and so long as the mutual adaptation of the several factors is adequate, the product possesses the precious but intangible quality of style.

Supposing the conditions remain constant, it may be that successive generations might continue to produce work with no more stylistic variation than would be found, let us say, in generations of chaffinches' eggs, true without decadence to one type; and, indeed, such stability of style seems to have been maintained for two full centuries in one exquisite branch of cabinet-making, namely, the making of fiddles. But the normal condition of life is change and continuous adaptation of means to end; and in England during the eighteenth century the process was continuous and adequate,

* From the Catalogue of the British Arts and Crafts Section of the Ghent International Exhibition.



NORMAN CHAPEL AND FONT, HADDON HALL.

and a live tradition maintained the quality of style among furniture designers. But early in the nineteenth century the course of development began to diverge from the logical sequence; scholastic ideals borrowed from Grecian stonework intruded themselves, at first as half-playful excrescences of column and pilaster, but soon growing to confuse the structural sense, when heavy seeming structural members were made to take the place of the moving styles of doors, and fronts of drawers masqueraded as lintols regardless of their ostensible supports. The fashion passed; but, the logical thread being broken, design was left to the aimless guidance of caprice. Meantime the reawakening spirit of romanticism, beginning in poetry, was gathering volume, and extending to other modes of expression; and, with quickened interest in archæology and the history of art, manifested itself on the architectural side in the work of Pugin and his fellows of the Gothic Revival, while on the literary side of aesthetics it culminated by the middle of the century in the inspiring eloquence of John Ruskin. But, seeking an ideal in the creations of Mediæval masonry, they forgot that the art of the worker in stone reached the zenith at an epoch when joinery was still in a rudimentary stage technically, and its applications were devised for the use of a society living a life so different from the modern that they afforded no model for reasonable imitation.

We find, therefore, in the early years of Queen Victoria architecturally trained designers producing furniture which imitates the superficial characteristics of Gothic masonry. Heavy roofing is put to bookcases and cabinets, made for choice of oak, but too often of poor stained deal; while tables and chairs were trussed and braced with foliated arcading.

Nay, the fashion spread to engineering, and those workers in wood who made the patterns for cast-iron engine frames wrought them in the semblance of complicated Gothic tracery instead of the Doric columns and entablatures familiar alike to pattern-maker and cabinet-maker forty years before.

Nevertheless in mere technicalities the tradition of fine workmanship in making of joints and in handling glue and in the proper seasoning of timber was kept alive among artisans, though the surface finish was spoilt by too uniform smoothness and a too highly varnished face.

But design was increasingly divergent from a sound tradition, either by reason of unintelligent habit or the mistaken pursuit of an archaistic ideal. Then about mid-century

came a fresh impulse in the work of the pre-Raphaelite painters, who, under a reactionary name, proclaimed adherence to rational principles of design and execution. Their influence was a powerful agent in the origin of the movement which followed, centring round the name of William Morris and developing into a widespread revival of artistic workmanship; and it is from this that the persisting Arts and Crafts furniture style takes its rise.

Morris himself was chiefly concerned with surface design. To the architect Philip Webb fell the province of solid geometry, including the design of furniture. But the earliest of their works were strongly affected by pictorial influences, their heavy type of joinery providing wide surfaces for decorative painting.

Morris at a later time defined architecture as the art of creating a building with all the appliances necessary to leading a dignified life, and it was this art that the two friends practised in the building and furnishing of the Red House at Upton in 1860. Alike in building and furniture, traditional methods and forms were employed with understanding, as points of departure, not as standards of attainment. No one more fully than Webb realised that at every step his work presented problems of material and manipulation analogous to those which confront the engineer; that in some cases tradition or history indicated satisfactory solutions, at others new forms had to be devised to meet new wants.

The main scheme of structure was that of the oak age of English furniture design, and was characteristically strong and massive. But all was so far from mere imitation or archaeological servility that from this date it can be claimed that the nucleus of a live structural and decorative style was once more developing in England.

Before long other traditional sources were drawn upon to feed the new current. The merits of the refined cabinet work of what writers distinguish as the mahogany age of English furniture were recognised, and also that of the chair-making trade, both in the sequence of designs that are popularly grouped as Chippendale, and in the still more specialised methods indigenous in our beech-wood districts, where chairs are put together of turned members, with tapered spindles wedged into round mortises.

The generalised structural unit both of tables and chairs can be analysed into a system of upright members tied together by one or more horizontal frames. In the case of chairs great strains are in use thrown upon the joints, which strains the condition that chairs must be easily movable, forbids our meeting by an excess of material, and consequent weight. The resultant technical difficulties are so great that in this branch of work the draughtsman is not likely to make any notable advance on accepted models unless he be in the most intimate touch with the workshop. Tables present no such difficulties, for strong tables may be heavy, and light tables need not be subjected to excessive strains; and accordingly we find an important group of forms based upon a structure of vertical uprights joined by horizontal framing. But the characteristic structural unit of cabinet-making is the box or chest, in which four pieces of plank are dovetailed together at the corners so that the grain runs all round, thus avoiding the danger of unequal shrinkage between the parts. The fifth and sixth sides which complete the unit cell must perforce run cross grain to two of the adjacent sides, if made of a single piece, and the various artifices by which the resulting risk of objectionable shrinkage is minimised are among the effective determinants of style.

The box thus complete is the structural unit of a great variety of furniture. When large, the workmen call it the carcase, and a brief survey of any set of pieces of furniture will, if analysed, give instances of its use in variety, both by itself and in combination with the table-frame type, as in ordinary sideboards, and of these two units practically all furniture is built up. However masked the ultimate structures may be by ornamental accretions, in the workshop the design is perforce analysed into its constituents.

Bases, pilasters, cornices, and the like may be structural reinforcements, or they may be merely echoes and æsthetic survivals of such structure.

But in either case the distinctive quality of style is implicitly concerned with the designer's sense of the structure, actual or symbolic, of his work, and cannot be attained by mere scholarship, or learning of the science of archaeology. To put it otherwise, style is a function of synthesis and a product of that sense of material which is not less appreciated in engineering and the purely mechanical arts.

Of course, there were many besides Morris and his friends who by word or work contributed to a change in the designer's

outlook. Their efforts should not be forgotten, but in an outline sketch names can only be used as headlines, and the army must be labelled with those of successful leaders. To resume then. Morris, in furniture, preferred solid joiner's work, plain massive oak, or broad surfaces for painted figure and pattern work. Furniture, he said, should look as if made of timber, and not of walking sticks. No doubt revulsion from the vulgarity of current work in mahogany counted in his choice. Webb, however, working on the constructive side, penetrated behind the characterless smoothness of early Victorian cabinet work to an appreciation of the sound principles concealed by its expressionless mask, and concurrently with admirable work in oak, either severely plain or relieved by moulding and carving, showed, also, that the methods of eighteenth-century cabinet work might expand into new shapes harmonising with the rich romanticism of Morris's mural and textile decoration as intimately as in their origin they had adapted themselves to the thin elegance of the later classicism.

It is only necessary to look at the plan of a moderate-sized house of 1800 and compare it with those of equivalent buildings by Philip Webb or Norman Shaw, or their fellow-workers in the revival of native domestic building, to realise the immensely increased complexity of modern ideals of comfort and convenience shown in the specialisation of each apartment, and the varied appliances for lighting, heating, and sanitation, all claiming thought in plan and design, and profoundly affecting furniture form.

Thus in the bedchamber more ample table space, wider mirrors, and accommodation for a more varied wardrobe are demanded, while no precedent can be found in the past for a washstand on the modern scale with the capacious crockery befitting it. With such problems Webb successfully grappled, as with many more.

But the most striking difference between a room of Adam's date and one of to-day would be found in the modern abundance of luxurious upholstery as compared with the relative bareness of the earlier furnishing. Easy chairs, couches, and settees from mere volume throw the prim slenderness of the earlier style out of scale, and foredoom the connoisseur to failure in the effort to combine a stylistic ideal with his notions of comfort.

One or the other must be modified, and in truth Morris and Webb at first endeavoured to replace the immovable upholstery of springs and stuffing by free cushions and squabs on visible wooden frames, a method affording much dignity in effect, but not capable of wholly dispensing with the other, which must permanently be taken into account as a factor in design. Besides the full-colour, highly wrought decorative ideals of Morris, there also grew up a taste for plain tinted walls and less highly patterned textiles, partly by way of contrast to and partly rather in opposition to the other, the tendency being towards a differentiation between a town style and a country style. And as it affects furniture we find that the country style has developed on the oak basis, the town style on the mahogany basis. Neither of them confines itself to the type timber, but the country style chiefly affects the paler-coloured woods, wrought in the solid and left from the plane, or at most wax-polished, employing mouldings sparingly as decoration, and for its richer effects relying more often on a restrained use of carving.

The town style chooses rather the darker and richer coloured woods, mahogany and rosewood, walnut and teak, either relieving them with delicate and often intricate mouldings, or, when veneering is resorted to, with inlay of fiddle-back maple, or satin wood, and all the choicer burrs and feathered woods, subduing the mouldings to very simple structural members, analogous to the capitals of columns and the string-courses in marble-faced architectural styles.

A moderate use of varnish in some form is essential to the protection of veneer, but the excessive filling of the grain and overloaded surface of the recent past is now avoided. Though in many ways dissimilar, there is no essential incongruity of style in the two schemes of design, which are practised indifferently by the same men, and are alike based upon the adaptation of practical methods to practical use.

Meantime the one danger that threatens the life of the style arises out of the public misunderstanding of one of the means adopted by the well-wishers of domestic art with the intention of its nurture, namely, museums, which, while they have aided the artist in the appreciation of the varied possibilities of available materials, have also tended to set up a false ideal in the mind of many people, who confuse connoisseurship with artistic perception, and do not perceive that the conscious imitation of an historic style, precisely as it is successful, banishes the possibility of attaining the elusive but vital quality of style.

SO-CALLED "CRYSTALLISATION THROUGH FATIGUE."*

By F. ROGERS, D.Eng., B.A., M.Sc. (Sheffield).

FOR many decades it has been usual to describe a piece of wrought iron or steel which breaks in service with a bright crystalline fracture as having "become crystallised through fatigue." This diagnosis, especially in the case of iron, occurs quite as frequently nowadays as before the advance of metallography. Evidently upon its soundness rests largely the allocation of the responsibility for many failures, as between the maker of the iron, who in some cases at least knows that the explanation is incorrect, and the user, who should now be aware that there are ready means of systematic inquiry into such failures.

Even amongst well-known writers such phrases occur as "evidently crystallised through fatigue," and "there is now ample evidence that fatigue has caused them to become crystallised and therefore brittle."

In no case, however, have I found any evidence in such papers that fatigue—that is, the effect of repeated stress in any form—had caused the metal to crystallise, or, rather, to become more perfectly or coarsely crystalline, or that repeated stress had caused any alteration of the structure other than directly destructive effects.

It is not proposed to enter very deeply into existing knowledge of the mechanism of strain effects, particularly since it is not proposed to offer any important novel material from this point of view, but it will be recalled that there are four well-recognised principal types of effects, namely (1) slip-bands; (2) intergranular weakness; (3) twinning, of which Neumann lamellæ may tentatively be taken to be a special case; and (4) change of structure.

Of these the first is by far the commonest, and is almost universal. I have found that typical fractures due to repeated slip under alternating stress in iron and steel are not of markedly crystalline appearance. The portion which finally suddenly breaks (if any) may have a "crystalline" fracture, but any other portion of the same sample broken by nicking and a blow has a similarly crystalline fracture, showing that the alternating stress has not produced the crystalline-breaking structure.

The second can give rise to a fracture of highly crystalline appearance. There is, however, no evidence that fatigue can give rise to crystalline-like intergranular fractures in a material which would not when quite new—that is, by a single straining—break in the same manner.

The third, twinning, excluding Neumann lamellæ, only occurs to an unimportant extent in iron and steel of commerce; further, the ability to form twin crystallisation is, in my experience, found to be associated with great ductility rather than with brittleness. I have never been able to ascribe brittleness to this cause.

The precise nature of Neumann lamellæ is problematical. So far as my observation goes, a fracture through a Neumann lamella is not essentially of a crystalline appearance. Speaking broadly, however, it may be said that crystalline-like fractures may be expected in ferrite-containing materials which show Neumann lamellæ under dynamic stress. Here again fatigue does not necessarily enter into the production of a crystalline fracture.

The fourth of the effects, change of structure, has only been proved to occur in polyhedric nickel and manganese steels whose composition is near the border between martensitic and polyhedric structure, and is evidently not a typical case in point.

During the past dozen years I have examined many samples in the hope of finding evidence on this point, and have come to the uniform conclusion that if a piece breaks in service with a crystalline-looking fracture, it would also have done so when new, and will also give similar crystalline fractures in parts which have not been materially fatigued, and where the material is of the same kind as that near the service fracture.

Further, it is my experience that fatigue will not cause crystalline fractures in a material which initially gives only fibrous or silky fractures. Very sudden shock may, however, give rise to a rather more crystalline appearance of the fracture of some such metals.

A partly "crystalline" and partly fibrous fracture specially examined is of a type which is usually at once ascribed to "crystallisation through fatigue." The piece, which failed in use, was a wrought-iron centre post, around which rotated a heavily loaded overhanging arm.

An examination readily proved that the crystalline appearance of the fracture could not have been caused by the fatigue which caused the failure. Some of the following particulars are also relevant in other respects.

When fractured across elsewhere the fractures were, throughout the length of the post, of the same type, and contained crystalline and fibrous portions at positions corresponding exactly with those in the fatigue fracture. This showed that the piece had been built up of two or more distinctly different varieties of metal.

Examination of microscopic samples confirmed this. Corresponding to the crystalline fractures, coarse grains predominated, and the part which broke with a fibrous fracture consisted of comparatively small grains. Such an observation is not novel; but is not intended to imply that coarse-grained metal is necessarily always brittle, or fine-grained metal necessarily tough.

The area of these large grains was from ten to twenty times as great as that of the largest grains in best Yorkshire iron, which has an all-fibrous fracture.

The amount of slag was relatively less in the coarse than in the fine-grained part, but it was all iron slag throughout, thus disposing of any suggestion that this piece was a mixture of iron and steel.

Neither cold work nor reheating to 900° C. removed the relative brittleness of the coarse portion, nor refined the microstructure, nor caused it to give fibrous fractures.

Upon fracturing, by a blow, a piece after polishing, it was seen that the effect typical of the brittleness of the coarsely crystalline part was a breaking straight across the grain. This sharp edge lies at about the middle of the large grain in which it occurs, and is about parallel to the direction of the very slightly apparent slip-bands in the same grain. It is the edge of one of the brilliant facets which give the crystalline appearance to the fracture at this place.

I found no instance of Neumann lamellæ, or of intergranular weakness.

Analysis gave the following figures:—

	Carbon. %	Sulphur. %	Phosphorus. %
Portion with crystalline fractures	0.05	0.02	0.10
Portion with fibrous fractures	0.05	0.01	0.22

These figures offer no tangible explanation of the cause of difference between the two portions.

A piece of the defective post was submitted to test in the author's shock-testing machine, reproducing on a small scale the usual falling-weight test upon an axle. This is attained by supporting the unnotched sample at both ends and giving it one suitable blow at the centre from a falling weight, then reversing the piece and giving two blows, then reversing and again giving two blows, and so on.

The sample was tested with a crystalline portion downwards, so as to be in tension at the first blow. The crystalline part cracked through at the first blow. Upon reversing the sample broke in two pieces at the next blow.

For comparison, some similar samples of best Yorkshire iron were similarly tested; they gave practically constant deflections per blow, and showed no sign of failure after seven blows, when the test was discontinued. Upon nicking and breaking at the centre (or at any point) these gave perfectly fibrous fractures, despite the severe straining caused by the test.

When best Yorkshire iron is tested under less severe alternating stress than this, one does not expect it to break with a fracture of crystalline appearance, whether it breaks under test or is subsequently broken for examination at the most severely stressed section. This was further verified in the author's rotating cantilever machine (Wöhler type), in which a piece of best Yorkshire iron was submitted, without failure, to 10,000 reversals of a stress of seven tons per square inch at a speed of 1,200 reversals per minute. When subsequently nicked and broken, the fracture at the most severely stressed section was still perfectly fibrous, as before.

Summarising, it is clear that the coarse crystallisation of the defective iron could not have been caused by the fatigue which caused its failure. The original bar was made up of fairly good and very bad irons. The precise reason why the bad iron was bad is not positively indicated in the test results given, but they suggest defective manipulation of the bad portions previous to piling with the good portions. Annealing did not cure the so-called "crystallisation produced by fatigue."

In another instance I have readily traced the cause of a crystalline-looking fracture of iron, accompanied by brittleness, to the presence of some steel in the iron. This steel

* A Paper read before the Iron and Steel Institute.

MODERN EUROPEAN ARCHITECTURE.
HUNGARY.[From *Moderne Bauformen*.]HUNTING-BOX OF THE GRAF PAPPENHEIM AT BUJAK,
HUNGARY.—Herr FRANZ ZELL, Architect.

would doubtless enter in the form of scrap. The admixture of steel scrap with iron is admitted to be a hopelessly bad practice, even by iron manufacturers.

I am indebted to Messrs. Taylor Bros. & Co., Ltd., of Leeds, for the samples of best Yorkshire iron upon which the comparison tests were made, and for their kind permission to publish the results of those comparison tests.

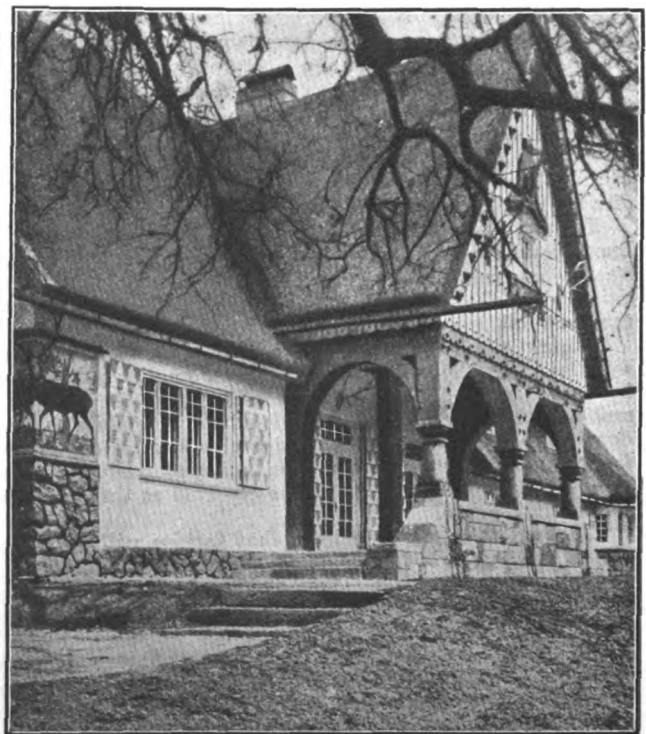
Messrs. DODD & DODD, consulting engineers, Birmingham, have prepared a scheme on the instruction of the Holywell Rural Council for the water supply of the parish of Llanasa. Application is to be made for sanction to a loan of £15,000 to cover the cost.

BUILDING IN WINNIPEG.

WINNIPEG has expended in the past nine years ending 1912 \$107,398,425 in new buildings. This represented 34,572 buildings, and it is safe to say that no city on the continent can show a better balanced distribution for a solid growth than has gone into the wholesale houses, business blocks, churches, schools, and handsome homes and apartments of Winnipeg.

Exactly \$20,563,750 was expended in new buildings within the city limits in Winnipeg during 1912. Over seventy apartment houses were erected during the year, representing an expenditure of over \$3,000,000. Three million dollars went into the building of new banks and office buildings in Winnipeg during that year, and well over \$1,250,000 was expended in new factories or in additions to old. The wholesale trade is represented by warehouses costing \$844,000. Theatres and places of amusement were erected almost in every quarter of the city, \$363,000 being expended in new moving picture houses alone. Costing each over \$10,000, 125 new homes were added to Winnipeg's best residential districts, twenty-six new residences costing over \$20,000 each, nine over \$25,000 each, and one \$100,000. To the sum of over \$20,000,000 expended in Winnipeg proper this year may be added at least \$8,000,000, a conservative estimate of new homes and public buildings in the immediately outlying suburbs.

The construction of Provincial Legislative buildings at a cost of about \$2,500,000 has now commenced, and work is also now proceeding in the erection of a new Court-House, in close proximity to the Parliament Buildings, which, together with other fine provincial buildings in that vicinity, will create an administrative architectural centre not surpassed in the Dominion. Plans have also been prepared for the new university site and the erection thereon of a great modern university. Rapid progress has been made during the year towards completion of the new \$5,000,000 Agricultural College, rendered necessary by increased attendance secured and equipment required. Notable additions have also been made to Winnipeg's church properties and to the hospitals, and the extensions to the general hospital, built at a cost of approximately half a million dollars, are now nearing completion. Competitive plans have been invited for a new City Hall, and among the larger undertakings in course of completion may be mentioned the new Union stock yards, commenced in May 1912, which when finished will cost \$2,000,000.

MODERN EUROPEAN ARCHITECTURE.
HUNGARY.[From *Moderne Bauformen*.]HUNTING-BOX OF THE GRAF PAPPENHEIM AT BUJAK,
HUNGARY.—Herr FRANZ ZELL, Architect.

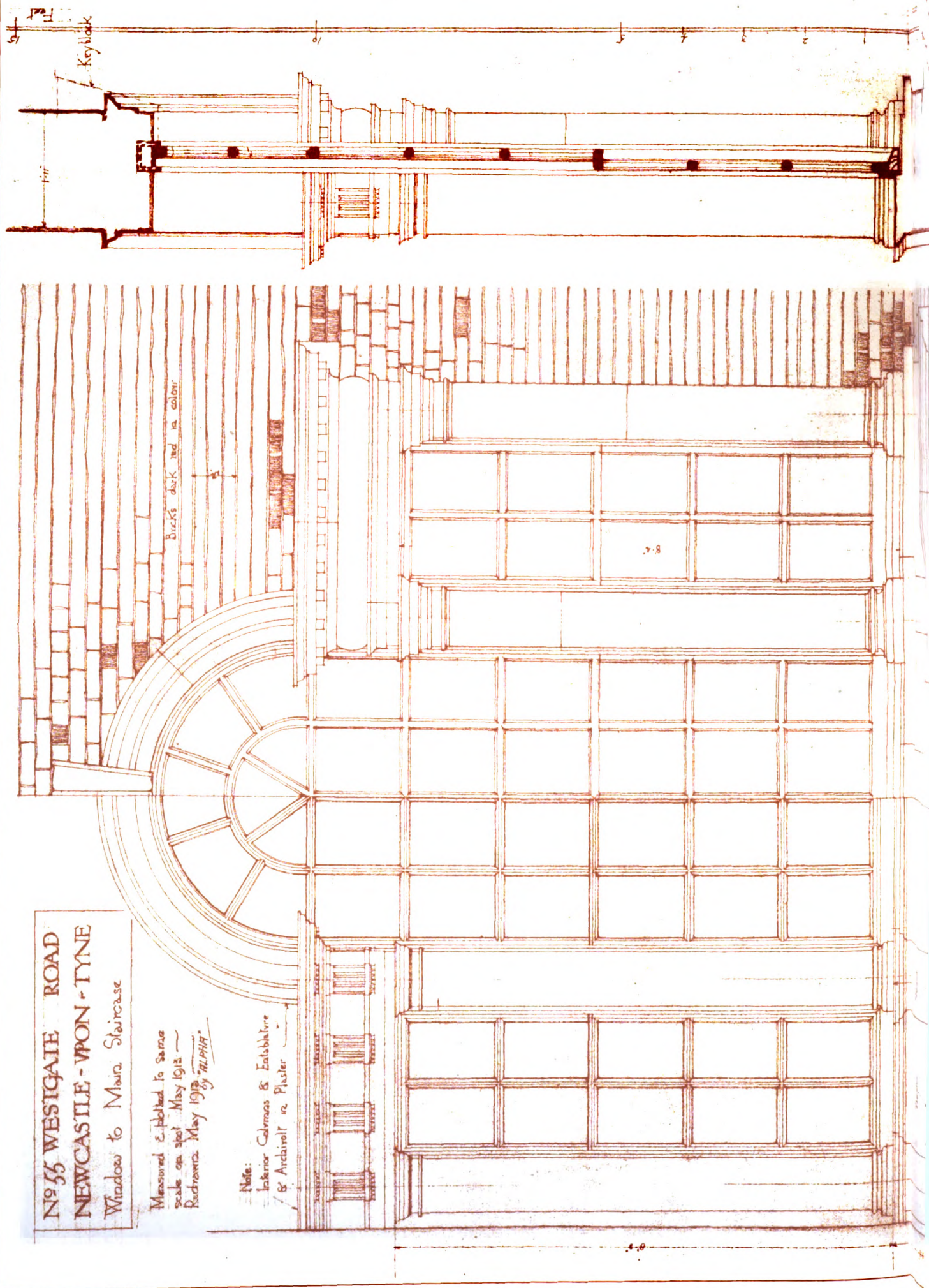
3.
1912
4.572
onti-
solid
ness
part-
ings
Over
pre-
lion
ild-
.000
The
.000.
in
new
00,
cal
000
um
ear
ate
ut-
a
is
n
,
,
,
r
,

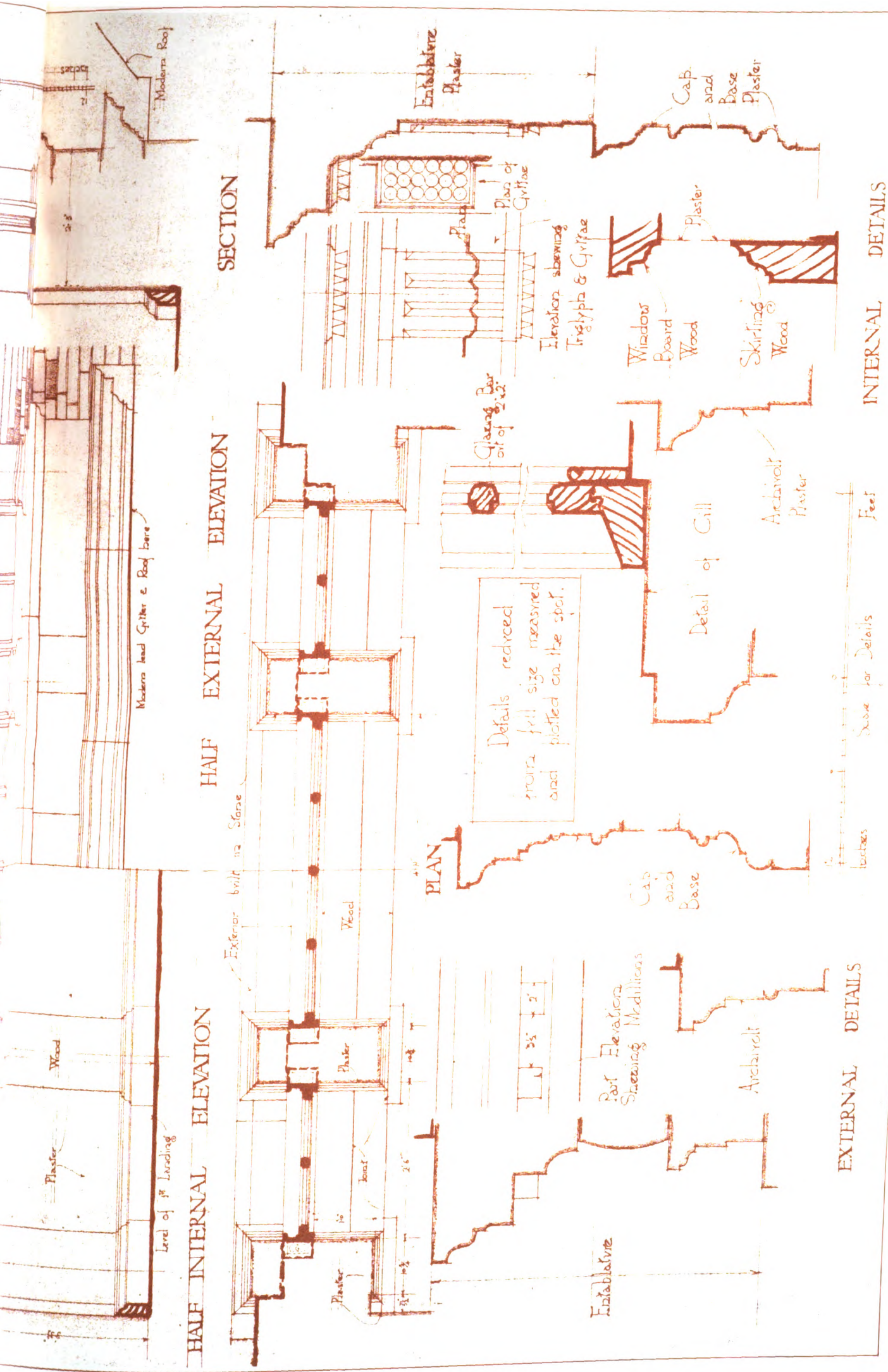
The Architect, Oct. 3rd 1913.

N^o 55 WESTGATE ROAD
NEWCASTLE - UPON - TYNE
Window to Main Staircase

Measured & plotted to same
scale as spot May 1912 —
Rochester May 1913. *W.H.D.H.*

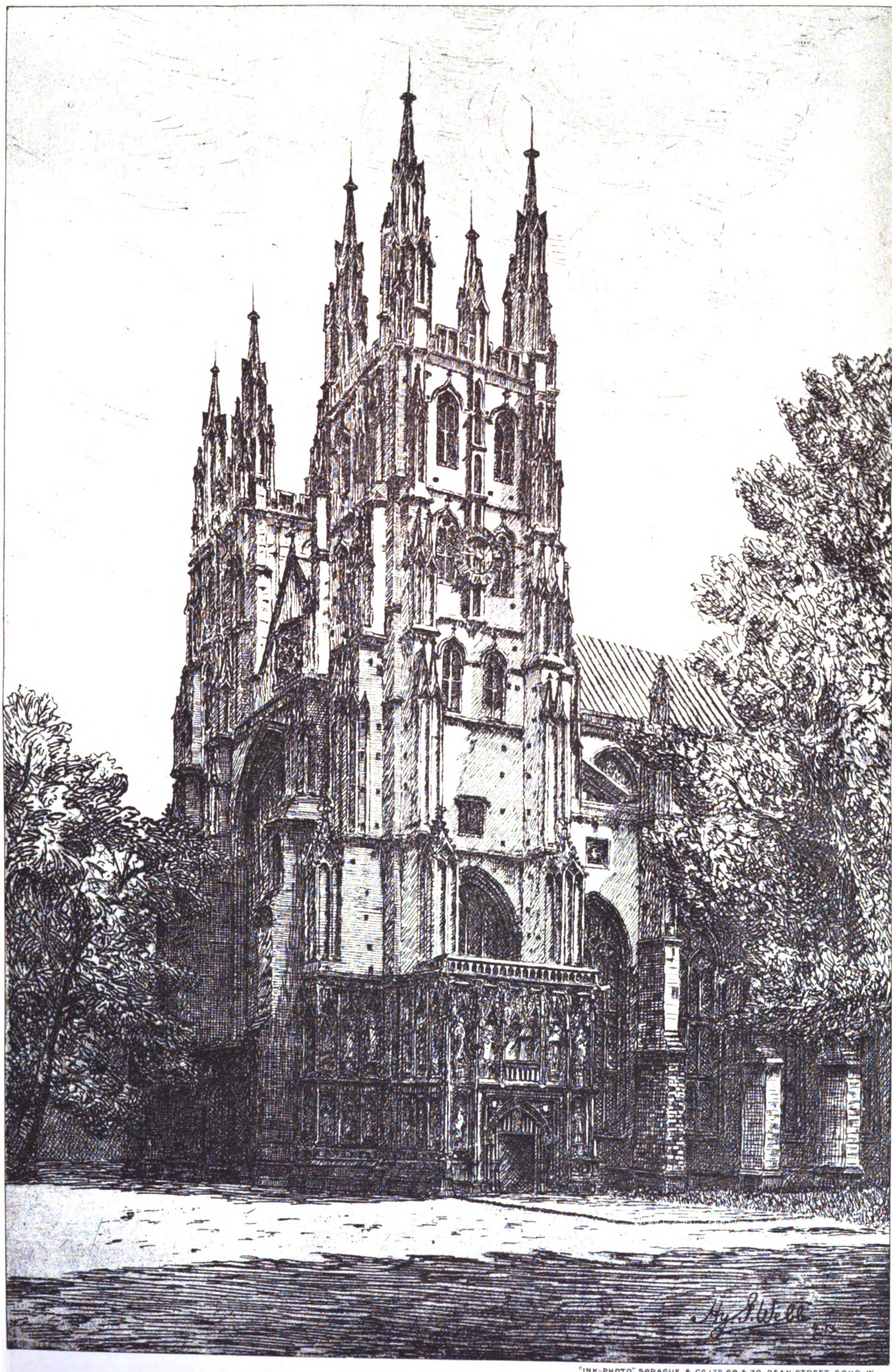
Note:
Interior Columns & Entablature
& Archivolts in Plaster





INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

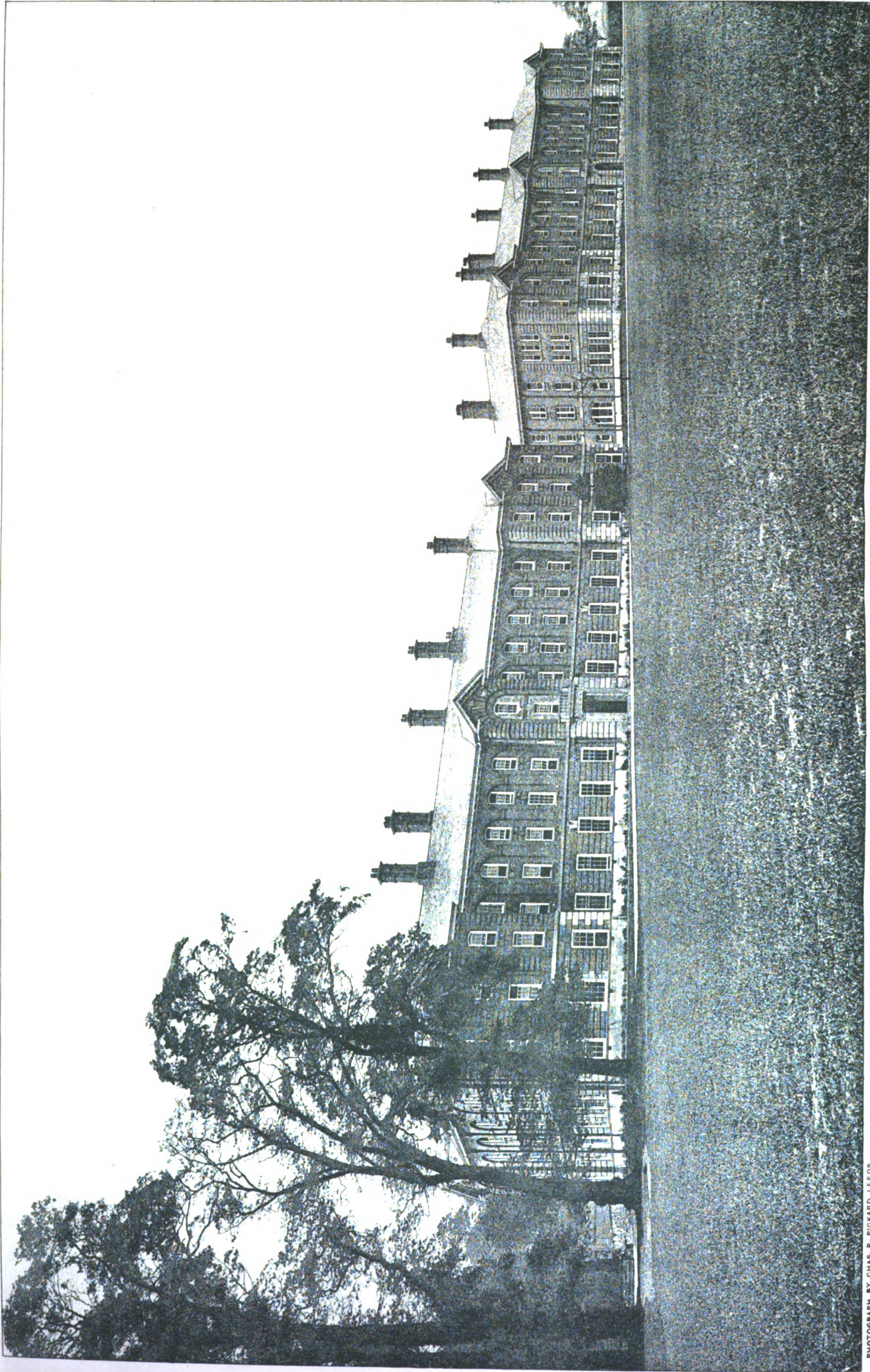
THE ARCHITECT " STUDENTS' SKETCHING AND MEASURING CLUB.
Prize Drawing by "ALPHA."



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

WESTERN TOWERS, CANTERBURY CATHEDRAL.

From an Etching by Mr. HY. G. WEBB.



PHOTOGRAPH BY CHAS. R. PICKARD, LEEDS.

CITY OF LEEDS TRAINING COLLEGE: CAVENDISH AND FAIRFAX HALLS
MR SIDNEY D. KITSON, F.R.I.B.A., Architect.

"H.K. PHOTO" SPRAGUE & CO. L^{td} 69 & 70, DEAN STREET, SOHO, W.



CITY OF LEEDS TRAINING COLLEGE: PRIESTLEY HALL.
MR. W. PEEL SCHOFIELD, Architect.

PHOTOGRAPH BY CHAS. R. PICKARD, LEEDS.

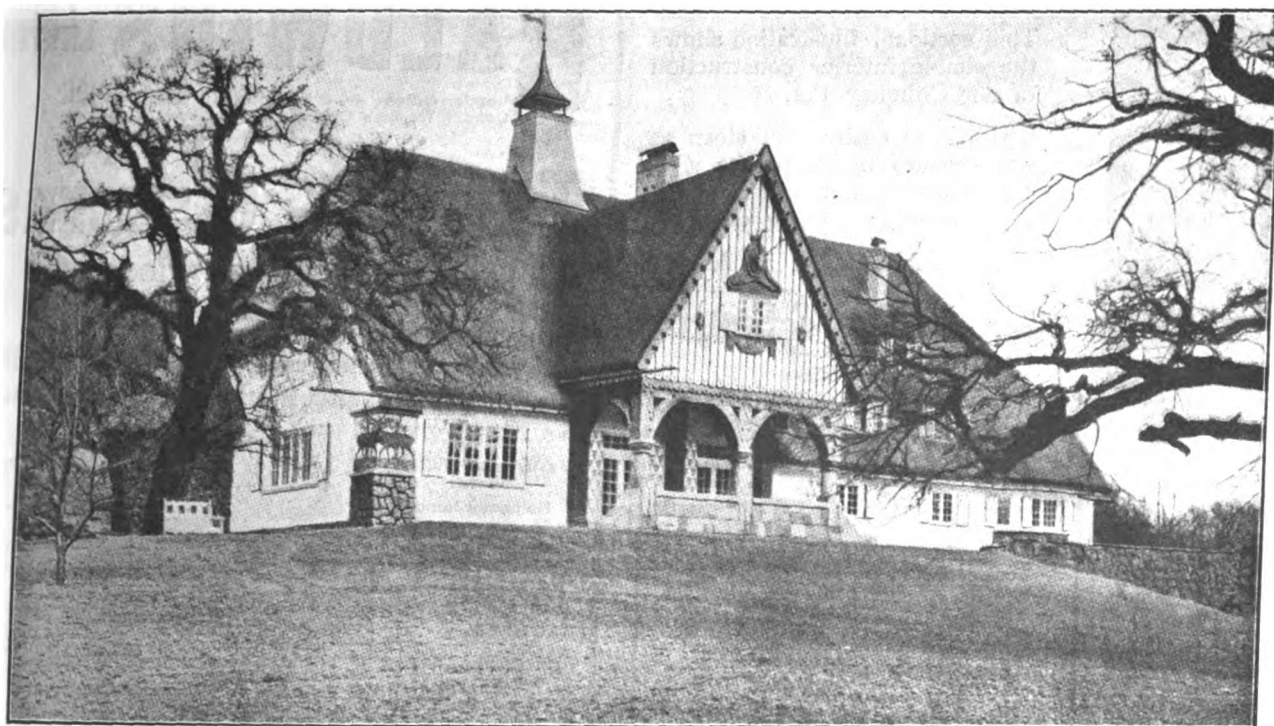
INK-PHOTO: SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

ST. JOHN'S HOSPITAL, CANTERBURY.

From a Drawing by Mr. H. G. WEBB.

MODERN EUROPEAN ARCHITECTURE.
HUNGARY.[From *Moderne Bauformen*.

HUNTING-BOX OF THE GRAF PAPPENHEIM AT BUJAK, HUNGARY.—Herr FRANZ ZELL, Architect.

MANITOBA'S MINERALS.

By Dr. R. C. WALLACE, Professor of Geology and Mineralogy, University of Manitoba, Winnipeg.

It cannot be said that a great deal of attention has been paid to the possibilities of Manitoba as a mineral producer. This is as might be expected in a province where agriculture has been and is of paramount importance. And yet the soil is not the only natural asset of any country; and a systematic investigation of the mineral resources must always play a prominent part in contributing to the development of the whole.

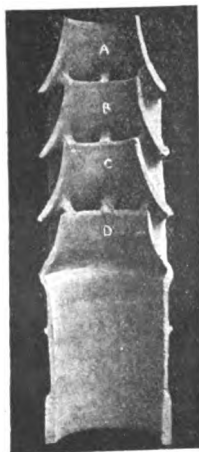
If we associate with the name of minerals such ores as are mined for gold or silver or copper, then it is indeed the case that minerals and good agricultural soil are not as a rule found together in nature. But under mineral resources must also be included materials such as clays, shales, sands and gravels, limestones, marls and coals, all of which are frequently found in districts which support a thriving agricultural population, and all of which call for development in the agricultural areas of our own province. One need only instance the case of our neighbour across the international boundary line, where a strong State Geological Survey and equally strong School of Mines, both integral parts of the University of North Dakota, are doing magnificent combined work in directing the development of the clays, cements, and coals of that State along the most rational and economical lines. A study of the features of industrial progress in a State pre-eminently agricultural, which are to be directly attributed to the researches and guidance of these organisations, would well repay the people of Manitoba.

But at a time when the province is on the eve of entering into a larger heritage, it is natural that attention should be directed rather to what we are likely to obtain than to what we already possess. Although certain areas in the vast Archæan territory of the new Manitoba have a coating of clay sufficient to provide an agricultural soil, the possibilities of revenue lie mainly in the mineral resources, the timber, the fisheries, and the water power which the new territory will provide. And it is here that the onus of the work will fall. Up to the present time it has been found possible to carry our organised geological survey work only along some of the principal waterways, and private prospecting has been desultory in the extreme. In order to realise the extent of our possibilities, and the importance of systematic work in this field, it need only be pointed out that in a district—comparatively speaking at our own doors—a discovery of gold was made over two years ago which

has led to the influx of a large number of prospectors into that particular area, and this in a belt which had not previously been geologically examined or even topographically mapped.

In the great Archæan Shield discoveries of ore deposits have been confined to the belt popularly known as Huronian, and consisting usually of Keewatin, Huronian, and even younger deposits, which may be generally characterised as dark or dark-green schists, conglomerates and slates, in contradistinction to the lighter colour of the surrounding Laurentian granites and gneisses. Of these dark schists there lie within the enlarged boundaries of the province several areas, no one of which has as yet been subjected to detailed investigation. Future exploration may discover still more such areas, and it is certain that the boundaries of some of those already located, as, for instance, the "Huronian" band in the basin of the Hole River, will be considerably extended in the future mapping of the areas concerned. Two of these "Huronian" belts—one of them rather extensive in area—will be rendered directly accessible by the Hudson Bay line. A third is connected by water route with Cumberland House and the Saskatchewan. Our knowledge of the existence of a fourth is primarily due to the fact that it lies along the well-used canoe route between Norway House and York Factory. Other areas lie near God's and Island Lakes, and the Black Island and Hole River belt extends eastwards beyond the limits of the province.

What these formations will produce is as yet largely a matter of conjecture. One district—that of Star Lake—near the eastern boundary of the province, and forming the western extension of the Lake of the Woods area, has now reached the producing stage, and gold mining in the province is happily an assured fact. Another—the Hole River and Rice Lake area—has been the scene of exceptional activity during the past year, and capital is now interested in developing this district, in which gold has been found over a wide area, and which, if present indications may be taken as a guide, will be producing gold within the next two years. Gold has been found in more than one of the other areas referred to, iron in several, specimens of copper ore are by no means uncommon, and discoveries such as have been made at Sudbury and Cobalt, names of world-wide importance, are by no means beyond the range of possibility. And in this connection it may be well to remember that although Cobalt is only a few miles distant from one of the earliest routes of travel in the country, its wealth lay hidden till



Section of Sankey's
"Perfect" Draught Pot.

Down-Draught

This sectional illustration shows the simple interior construction of our Chimney Pot.

The pot is easily kept clean, as the sweep's brush passes right through the pot, and there are no small openings to clog with soot.

Full particulars on application.

J. H. Sankey & Son, Ltd.

Head Office:
Essex Wharf, CANNING TOWN, London, E.



Stained Glass Windows & Leaded Glazing.

Specially designed in old Colourings, to include Armorial Bearings, &c., if desired.

Estimates and designs submitted free for all kinds of work, together with testimonials showing that work of highest grade may be relied upon.

Andrew Stoddart,

The Studio, 15 Long Row,
Telephone: No. 261 Y. Nottingham.

(1)

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

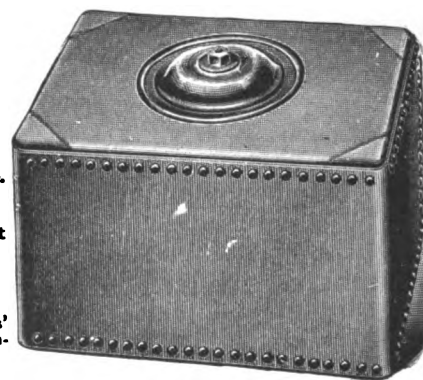
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



**IRON KEGS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**

THE WALL-PAPER MANUFACTURERS LTD. "Relief Decorations."

**ANAGLYPTA &
SALAMANDER**

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2781 Gerrard.

Telegrams: "Anaglypta, London."

Telegrams: "Anaglypta, Darwen."

**LINCRUSTA-WALTON,
CAMÉOID & CORDELOVA**

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 8769 Gerrard.

Telegrams: "Lincrusta-Walton, London."

LIGNOMUR

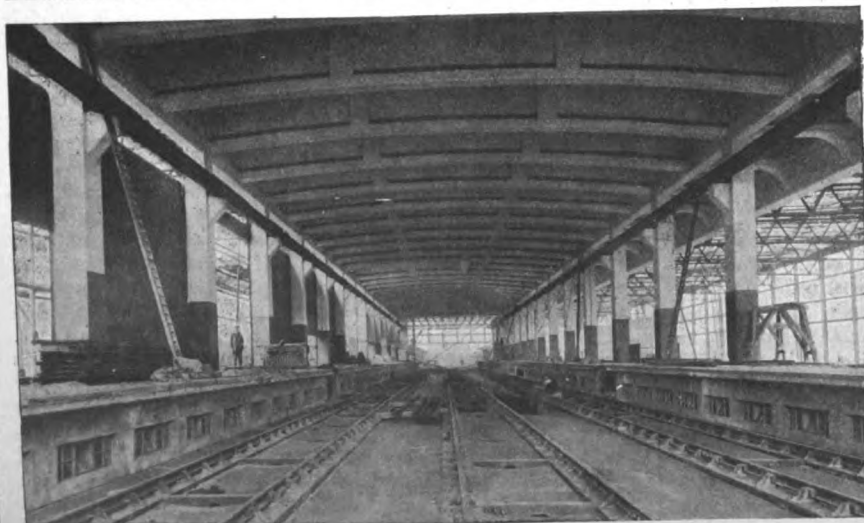
Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East.

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY-LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all
classes of buildings.

They are **FIREPROOF**,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use
in all parts of the world.

Arthur L. Gibson & Co.,

Radnor Works,
Strawberry Vale,
TWICKENHAM.

MANCHESTER:

33 Arcade Chambers
St. Mary's Gate.

GLASGOW:

79 West Regent Street.

some ten years ago; and it was due to a cutting for the Canadian Pacific Railway that the world's attention was first directed to Sudbury.

But the glamour of the Northland ought not to blind us to the necessity of utilising the resources more easily available within the limits of the province. If Portland cement were manufactured from raw materials mined in Manitoba, a very considerable saving in freight rates might be effected. Limestones sufficiently pure for this purpose outcrop at various points on Lake Manitoba, and the necessary clay or shale is available conveniently near at hand. The calcareous Niobrara shales provide a suitable material for a natural cement, and future investigations in this direction may result in considerable increased activity. Valuable gypsum deposits are mined in the vicinity of Lake St. Martin, and in the country between Lake Manitoba and Lake Winnipeg other beds may yet be found. Borings have shown the existence of gypsum over wide areas at varying depths from the surface. A pure friable sandstone at the base of the sedimentary strata of the province will provide a good material for a future glass industry. A good phosphatic shale which is found in the western part of the province will come into requisition as a fertiliser when the soil begins to show signs of exhaustion. Our limestones are already a valuable asset, not only from the point of view of building stone, but as lime and rubble producers. Extensive northern areas of limestone are awaiting development, and for the furtherance of the "Good Roads" movement not only the limestones, but also the available sand and gravel ridges will be utilised. Because of our great clay resources the brick and tile industry will occupy a very prominent position for many years to come; and the Geological Survey is at present investigating the possibility of utilising the stiff till underlying the upper clays. With regard to fuel, the value of peat is being more and more emphasised in Canada and elsewhere, and Manitoba has her fair share of this commodity. Of lignites, Turtle Mountain contains, on a rough estimate, 160,000,000 tons; and the formations in which lie the Lethbridge lignites extends into Western Manitoba, and deep borings may yet repay the expense they entail.

In reviewing the mining situation of Canada for 1911, the *Canadian Mining Journal* is compelled to state that this province pays as yet practically no attention to exploiting her mineral resources. When, however, the greater Manitoba of the future acquires the control of her natural resources, the authorities will undoubtedly see their way to initiate a vigorous policy of development of the minerals we will then possess.

The following figures are given as summarising the present situation, in so far as can be done with the latest available figures. They will also serve to contrast the present with possibilities for the future, when serious attention is given to developing our minerals.

Total production for 1911	\$1,684,677
Total production of Saskatchewan	618,379
Total production for Alberta	6,404,110

Detailed Statement for 1910.

Gypsum	\$195,000
Clay products and sandlime brick	753,232
Granite	3,345
Cement	21,995
Lime	100,808
Limestone	328,029

LONDON UNIVERSITY EXTENSION LECTURES.

MR. BANISTER FLETCHER, F.R.I.B.A., gave the first of twenty-four University Extension lectures on "Ancient Architecture" at the British Museum yesterday.

During the coming winter he will trace the evolution of architecture in Egypt, Assyria, Greece, Rome, and Byzantium, with special emphasis on its influence on all subsequent styles down to our own day.

He pointed out that architecture was not only the visible exponent of civilisation, but that all present-day buildings were founded upon ancient art adapted to modern needs. The study of architecture was thus necessary for architects, craftsmen and students, authors, journalists, photographers and antiquaries, and the teaching profession now adds to the interest of history by referring to dwellings and temples constructed by different nations for their social, religious, and political requirements, while for the general public a know-

ledge of the monuments of the past adds to the enjoyment of travel and the understanding of our own surroundings.

The lectures will be illustrated by some twelve hundred views, so that during the twenty-four hours thus spent students will study what would require in actual travel at least as many months.

Mr. Fletcher gave an illustrated review of ancient architecture, and referred to the different influences—geographical, geological, religious, climatic, social, political, and historical—which aided in the evolution of building. He passed in review the world-famous Sphinx, a sentinel of the past, the massive temples and tombs of the Egyptians, the palaces of the Assyrians, the temples and theatres of the Greeks, the monumental buildings of the Romans (such as the Baths of Caracalla), the stupendous Coliseum, and the Arches of Triumph, as well as the dwellings at Pompeii, the churches of the early Christians, and the peculiar types of buildings erected under the influence of Byzantium.

Obviously the British Museum, which contains the world's richest collection of ancient art, is an ideal place for such lectures, as there the exhibits can be studied in the class after the lecture.

This course is recognised in qualifying for the diploma in the History of Art given by the University of London.

The lectures are delivered on Thursday afternoons at 4.30 in the Assyrian Saloon of the British Museum.

The subject of the next lecture will be "Egyptian Architecture."

Particulars can be obtained from the Hon. Secretary, 10 Woburn Square, W.C.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Hurst.—Bungalow for Mrs. Cobham (of High Chimneys).

Newbury.—Cattle Market: extension (£950).

Wargrave.—House at Hare Hatch, for Mr. R. Crisp.

Woodley.—House, Mustard Lane, for Mr. F. Haynes.

BUCKINGHAMSHIRE.

Hazlemere.—Church Day Schools: enlargement (£1,200).

Mr. H. Cubitt, A.R.I.B.A., architect, Nos. 227 and 228 Strand, London (also at High Wycombe). Mr. A. C. Dean, contractor.

CORNWALL.

St. Austell.—Workhouse: infirmary and mortuary (£3,100).

DERBYSHIRE.

Chesterfield.—Tuberculosis Sanatorium, Walton Road. Messrs. W. H. Ward & Son, architects, 30 Paradise Street, Birmingham.

Derby.—Picture Palace, London Road (£6,000). Mr.

L. L. Goldie, architect, Bank Chambers, Irongate.

Girls' Secondary School, Parkfield Cedars (£8,600).

Glossop.—Liberal Club premises.

Spondon.—Parish Church: additions (£500).

DEVON.

Ermouth (near).—Additions and alterations at Hulham, for Mr. G. N. Thomson. Mr. J. Crocker, F.R.I.B.A., architect, Stuckey's Bank Chambers, Exeter.

DURHAM.

High Spen.—Council Schools for girls (320) and infants (240).

Marley Hill.—Council School.

Sunderland.—Jeffrey Memorial Hall, Monk Street, Ven Bede. (Accommodation for 500.) Messrs. F. Caws, Steel & Caws, architects, 22 Fawcett Street (£2,250).

Messrs. Golding & Ward, contractors, Vilette Road.

West Cornforth.—Council Schools.

ESSEX.

Barking.—Thirty-eight Council houses (£7,700).

Chelmsford.—Seven houses, Bishop's Road. Mr. F. G. Vincent-Brown, architect, Orwell Terrace, Dovercourt.

Two pairs of houses, Bouverie Road, for Mr. A. T. Gozzett.

Chipping Ongar.—Council School: alterations and enlargement (£3,120).

Coggeshall.—Council School (£2,700).

SPECIFY

CLARIDGE'S

**PYRIMONT-SEYSSEL
ASPHALTE****FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.****CLARIDGE'S PATENT ASPHALTE CO., Ltd.
21 SURREY STREET, STRAND, W.C.**TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

Orr's Zinc White Limited

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.****ZINC SULPHIDE WHITE (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.****"SILOX," a special White for use in place of White
Lead.**

ENQUIRIES SOLICITED.

ENGLAND—continued.

ESSEX—continued.

Dovercourt.—Stables and dairy (£1,550). Mr. Vincent-Brown, architect, Orwell Terrace. Mr. E. Saunders, contractor, Hill Crest Works, Main Road.

Iford.—Swimming baths (£19,700). Council surveyor.

Inworth.—Council School: enlargement (£650).

Leyton.—Boys' Secondary Schools, Essex and Chesterfield Roads.

Little Clacton.—Council School (£1,850).

Little Thurrock.—Eighty-nine houses, Rectory Road, for Mr. B. N. Pipe.

Messing.—Council School (£1,550).

Ongar.—Cookery and Handicraft Centre (£770).

Romford.—Girls' County High School: addition.

Wickford.—Council School and Cookery and Handicraft Centre (£2,250).

GLOUCESTERSHIRE.

Bristol.—St. Peter's Hospital: extension for the Guardians. Mr. W. S. Skinner, F.R.I.B.A., architect, 27 Orchard Street, College Green.

HAMPSHIRE.

Portsmouth.—Fire Station.

Eye and Ear Infirmary: extension (£4,000).

Romsey.—St. Joseph's Orphanage: church.

HUNTINGDONSHIRE.

Yaxley.—Boys' School: alterations. Mr. H. Leete, County surveyor, Market Hill.

LANCASHIRE.

Bolton.—Bleach Works, Slater's Lane: addition for Messrs. Slater & Co.

Engine-house, off Mornington Road, for the Musgrave Spinning Co.

Weaving Mill for over 800 looms; also Offices. Messrs. T. E. Smith & Son, architects, Central Chambers, Fold Street.

Grammar School and Girls' High School: additions and alterations.

Patricroft.—St. Mary Magdalene's Church, Winton (£6,500). Mr. R. T. Beckett, A.R.I.B.A., architect, 7 Abbey Buildings, Chester; also

Worsley.—St. Mark's Church (£6,000).

LINCOLNSHIRE.

Moortown.—Wesleyan Sunday School.

NORTHUMBERLAND.

Amble.—West End Club: additions. Mr. G. Reavell, junr., A.R.I.B.A., architect, Lloyds Bank Chambers, Bondgate Within, Alnwick.

North Seaton.—Council School for 344 places (£3,250).

Scotswood.—Church for 600 sittings (£5,000).

Whitley Bay.—Sunday School extension, for P.M. Church, Cullercoats.

NOTTINGHAMSHIRE.

Mansfield.—Free Library, Leeming Street: extensions (£1,000). Borough surveyor.

Sutton-in-Ashfield.—P.M. Chapel, New Cross.

SHROPSHIRE.

Wellington.—Workmen's houses (£3,200).

SOMERSET.

Weston-super-Mare.—Public abattoirs.

STAFFORDSHIRE.

Cradley Heath and Old Hill.—Council Schools.

Walsall.—St. Peter's Church day school, Marlow Street, for 400 places (£2,500).

SUFFOLK.

Southwold.—Twelve workmen's dwellings, for the Council.

SURREY.

Croydon.—Public baths, South Norwood (£4,300).

Mission Hall, Johnson Road, for Mr. W. Harris.

House, Hill Drive, Pollard's Hill North, for Mr. P. H. Chown.

House and Shop, Brighton Road, for Mr. J. Hicks.

Egham.—Henry Strode Secondary School.

Limpsfield.—Ten Council cottages.

Woking.—Council School for 200 places, Goldsworth Road.

SUSSEX.

Brighton.—Prince's Hotel, Queen's Gardens: extension.

Chichester.—Olympia Theatre: alterations for the British Amusements Trust; also

Cinematograph Theatre, North Street.

WARWICKSHIRE.

Erhall.—Public Elementary School.

WESTMORLAND.

Hawkshead.—St. Michael's Church: extension of Sandys Chapel. Mr. J. F. Curwen, F.R.I.B.A., architect, 26 Highgate, Kendal.

WILTSHIRE.

Trowbridge.—Picture Palace, for Mr. F. S. Perkins.

WORCESTERSHIRE.

Droitwich.—Workmen's dwellings.

Pebworth.—Ten cottages for the Council.

YORKSHIRE.

Attercliffe and Darnall.—(See under "Sheffield.")

Doncaster.—Technical School (£13,000). Messrs. Schofield (A.R.I.B.A.) & Berry, architects, 15 Park Row, Leeds.

Mr. Paul Rhodes, contractor, Skinner Lane.

Embsay.—Smallpox hospital, for Skipton R.D.C.

Goole.—Municipal Offices (£8,000). Mr. E. E. Fetch, A.R.I.B.A., architect, 20 John Street, Adelphi, London.

Huddersfield.—Baptist Sunday School, New North Road: extension (£1,700).

Ruswarp.—Village Hall (£850).

Selby.—Workmen's dwellings, Armoury Lane. Mr. B. Gray, Council surveyor.

Sheffield.—Church extension at Attercliffe, Darnall, and Tinsley (£14,000).

Ulseskef.—Church Institute.

Worsborough.—Garage, &c., Round Green. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

WALES.

Ammanford.—Bettws Council School: additions. Mr. W. V. Morgan, A.R.I.B.A., architect, County Offices, Carmarthen (£700). Mr. J. S. Thomas, contractor, Pontyffynnon.

Flint.—Bakehouse, stables, &c., for Flint and Oakenholt Co-op. Soc., Ltd. (£1,630). Mr. F. A. Roberts, architect, Earl Chambers, Mold. Mr. A. B. Lloyd, contractor, Halkyn Street.

Lampeter.—Territorial Drill Hall. Mr. L. B. Price, architect, Doldremont.

Llandough.—Workhouse: hospital.

SCOTLAND.

Aberdeen.—Public School, Skene Street. Mr. J. A. O. Allan, architect, 25 Union Terrace.

Broughty Ferry.—"Cedarlea" additions and alterations for Mrs. Murdoch.

No. 4 James Place: additions and alterations for Miss Anderson.

Dalry.—Workshop, James Street, for Mr. R. Begg.

Edinburgh.—Royal Scottish Museum: extension in Lothian Street (£47,000). Mr. W. T. Oldrieve, F.R.I.B.A., architect, H.M. Office of Works, Parliament Square.

Glasgow.—Seven cottages and eight tenements, Kennyhill (£14,800). City engineer.

Five Tenements, Calder Street, for Messrs. J. Morrison & Co.

Glengarnock.—House for the Premier Tanneries Co., Ltd.

Greenock.—Five tenements of workmen's dwellings, Serpentine Walk (£5,600).

Haarwick.—St. George's U.F. Church and halls (£5,000).

Kilmarnock.—Business premises, Portland Street: extensions for Messrs. A. Ross & Co. (£1,500).

Infirmary extension (additional accommodation for fifty-seven beds). £16,000.

Montgreenan.—House: additions for Sir J. Bell, Bart.

Stevenson.—School, New Street, for the School Board.

Wishaw.—St. Andrew's Episcopal Church.

IRELAND.

Balbriggan.—Forty labourers' cottages, for the Town Commissioners.

Dublin.—Workhouse: Hospital extensions and alterations (£6,500).

Dunshaughlin.—Ninety labourers' cottages (£15,300).

PATENT SPECIFICATIONS PUBLISHED
SEPTEMBER 25, 1913.

Selected by James D. Roots, M.I. Mech.E., Thanet House, Temple Bar, London.

No. 19,382. Aug. 24, 1912.—E. H. Johnson, "Fair-light," Pennington Road, Southborough, Kent. Water-heating apparatus.

19,965. Sept. 2, 1912.—J. C. Moore, Nightingale Hall, Lower Edmonton, N. Door closers and checks.

19,976. Sept. 2, 1912.—W. M. Homan, 20 Renfrew Street, Glasgow. Sundials.

20,380. Sept. 7, 1912.—Arthur Bryan, Minworth Hall, Minworth, near Birmingham, and L. F. Mountfort, A.M.I.C.E., 53 Wheelwright Road, Erdington, Birmingham.

RUBEROID SARKING FELT - - -

IN USE ON

Hever Castle, Kent.
Weasenhall Hall, Norfolk.
Quarr Abbey, Isle of Wight.
Uplands Schools, St. Leonards.
Holy Cross Schools, Bedminster.
Littlemore Asylum, Oxon.
Lloyds Bank, Carnarvon.
Lloyds Bank, Smethwick.
Nurses' Home, Salop Infirmary.
St. Bede's Church, Cumberland.
Congregational Church, Northampton.
&c., &c.

INODOROUS, NON-CONDUCTING, WATERPROOF.
SAMPLES AND PARTICULARS ON APPLICATION.

The RUBEROID COMPANY, Ltd.

22 WATERLOO HOUSE, KNIGHTRIDER STREET, LONDON, E.C.

2 FORTH STREET, NEWCASTLE-ON-TYNE.
37 ASSEMBLY STREET, LEITH.
1 ASTON'S PLACE, DUBLIN.

"NATIONAL" AIR - GAS.

National Air Gas is the cheapest and most reliable lighting and heating agent, as witness the following testimonial (original, along with many others, can be seen at these offices).

"Woodhill," Warrington.
June 13, 1913.

The International Air Gas Corporation, Ltd.,
26 Victoria Street, S.W.

Gentlemen.—I have much pleasure in stating that the installation of your plant here has given me entire satisfaction.

I consider the light superior to any form of electricity or ordinary gas, and the cost of working is infinitesimal. In my case I believe the weekly expense works out at about 1s.

Yours faithfully,

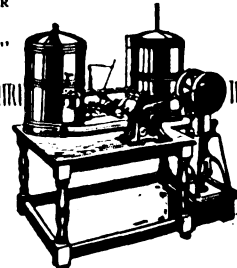
Complete Installation from £40

Do not miss the "National" Bungalow,
Stand 81, Ideal Home Exhibition.

Sole British Concessionaires for the Bonecourt System of Radiant Heating for Petrol Gas, Saving 25% over any other.

PLEASE APPLY FOR
OUR BOOKLET,
"THE ONLY WAY."

AGENTS WANTED
WHERE NOT
REPRESENTED.



Lighting and Heating Dept.,
INTERNATIONAL
AIR-GAS
CORPORATION,
LTD.

26 VICTORIA ST.,
LONDON, S.W.

'Phone 6091 Victoria
(3 lines).

Telegraphic Address:
"Naircon, London."

"Exmet" Brickwork Reinforcement

A NEW TYPE OF EXPANDED METAL
FOR REINFORCING BRICKWORK, Etc.

IMPORTANT NOTICE

Statements have been published implying that the use of "EXMET" for brickwork reinforcement constitutes an infringement of certain Patents, controlled by other manufacturers, and threats of actions for infringement against users of "EXMET" for brickwork reinforcement have been made.

The Expanded Metal Company denies any such implication, but the statements have been too vague, as yet, to admit of any action being taken to stop them.

The Company undertakes to protect its customers who use "EXMET" or any of its products for brickwork reinforcement, by indemnity and guarantee against all damages for any actions for infringement.



THE EXPANDED METAL COMPANY Limited,

Patentees and Manufacturers of EXPANDED METAL.

HEAD OFFICE

(to which address enquiries should be sent):
York Mansion, York Street, Westminster,
London, S.W. Telephones:—
Telegrams:—"Distend, Vic., London." Gerrard 819; Victoria 1514.

WORKS

(to which address orders should be sent):
Stranton Works, West Hartlepool.
Telegrams:—"Expansion, West Hartlepool." Telephone:—
94 West Hartlepool (2 lines).

April, 1913

Operating mechanism for use in connection with sewage and like intermitting valves.

20,478. Sept. 9, 1912.—R. C. Sayer, 11 Clyde Road, Redland, Bristol. Apparatus for diverting fluid from flushing pipes.

20,599. Sept. 10, 1912.—William Field, 51 Vineleigh Road, Penge, S.E., and Henry Kimber, 12 Hawthorne Grove, Penge, S.E. Means for cutting wallpaper round skirting, door frames, windows and the like.

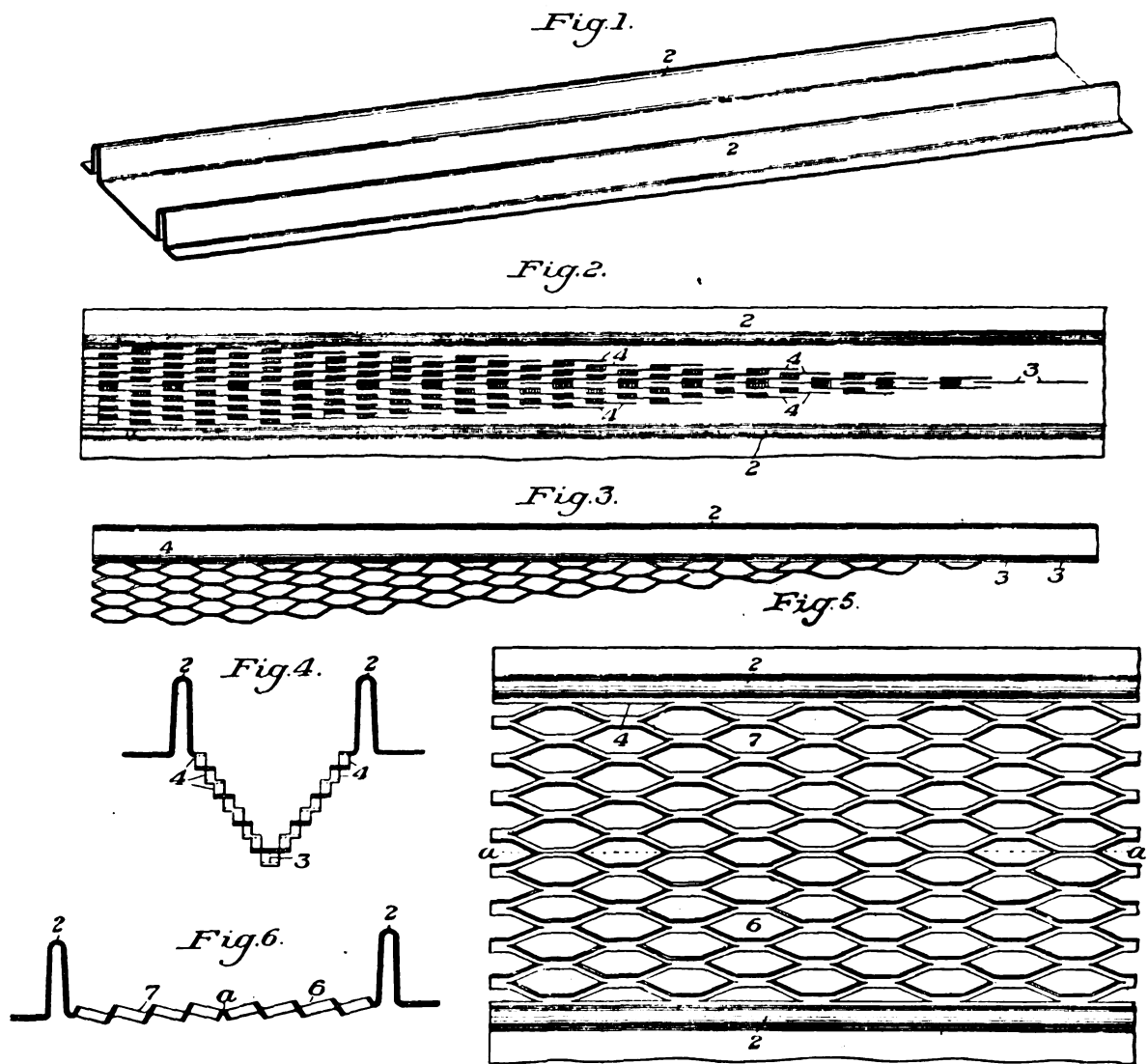
24,921. Oct. 31, 1912. J. W. Bottomley, Whitehouse Engineering Works, Leeds. Continuous kilns for burning or firing bricks, tiles or other earthenware, fireclay and like goods.

26,251.—Nov. 15, 1912.—The Coke Ovens and By-products Co., Ltd., St. Stephen's House, Westminster, and Nicholas Schuster, 181 St. Stephen's House, Westminster, S.W. Bricks for the construction of chimneys and the like.

26,256. Nov. 15, 1912.—T. J. Digby, 32 Shaftesbury Avenue, W. Electric heating devices for buildings.

26,916. Nov. 22, 1912.—Joseph Stevenson, 15 St. Paul's Road, Salisbury, and Firth, Blakeley, Sons & Co., Ltd., Dewsbury. Generation of carburetted water-gas.

sheets to develop and produce, in a rapid and economical manner, an expanded sheet-metal product known as a ribbed metal lath which possesses special utility as a reinforcing element for concrete. A distinguishing feature of the present method consists in subjecting the sheet of metal either simultaneously with or after the slitting operation to an operation which not only displaces or offsets the individual strands at one side of the plane of the original sheet, but also has the effect of elongating or stretching the strands. Fig. 1 is a perspective view of the preliminary stiffened and grooved sheet-metal blank. Figs. 2, 3, and 4 are plan, side elevation, and cross-section views, respectively, illustrating the combined slitting, stretching, and deforming operation which displaces a meshed-web in a V-shaped form or arch between the ribs. Figs. 5 and 6 are plan and cross-section respectively of the final step of the process, wherein the metal-shape of Fig. 4 is spread or expanded laterally, straightening out the V-shaped or arched meshed web into substantially the plane of the original sheet. The ribbed blank of Fig. 1 is subjected to the combined slitting, stretching, and deforming operation by special dies of known kind. The first stage produces a series of aligned and spaced longitudinal slits or cuts 3. Next, the central line of slits 3



27,116. Nov. 25, 1912.—S. J. Greenwood, 13 Gilbert Road, Bromley, and A. E. Watson, 39 Maltby Street, Bermondsey, S.E. Appliances for stopping the flow of water or other liquids or gas from a burst pipe.

Any of the above specifications may be obtained from J. D. Roots & Co.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 7,206. March 26, 1913. Process for Making Expanded Metal Structures. H. E. White, 1,435 Kensington Avenue, Youngstown, Mahoning, Ohio, U.S.A. This invention relates to a novel method of manipulating metal

are succeeded by the formation of other longitudinal slits 4 in the metal sheet on both sides successively made nearer and nearer to the margins of the sheet, and all of the slits being disposed in staggered relation to the slits of adjacent rows. Simultaneously the strands or portions of metal between the slits are elongated or stretched, producing open interstices, thus shaping the meshed web into a V-shaped trough-like form, temporarily disposing the cut and expanded portion of the metal out of the way until the whole section between the ribs is cut and ready to be subjected to the final step of the process. In the final product there is produced an expanded section between each pair of ribs of a diamond-meshed form with the slits or strands of the mesh inclined at a considerable angle to the flat plane of the structure, the slats or strands 6 at one side of the longitudinal centre line *a* being inclined reversely to the slits or strands 7 at the opposite side of said line, which construction increases the strength and rigidity of the structure. August 27, 1913.

MOTOR TRACTION MEANS — MORE — TRADE.

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarsold, Sowest, London." Telephone: Regent 2043.

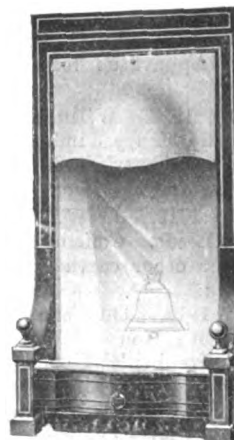
*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

GOLD MEDAL "Bell" Grates

are in use at
The Gables,
Frinton-on-Sea.
Manor Park, Beds.
Ewhurst Manor,
Henfield.
Lampport Hall,
Longden Manor,
Shrewsbury.
Inveraray Castle,
Pollok Castle,
St. Osyth Priory,
Colchester.
Fyning Manor House,
Weald Manor, Oxon.
Brunton Hall,
Northumberland.
Burton Hall,
Stillorgan,
&c., &c.

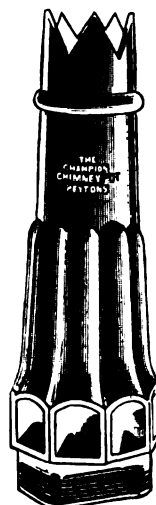
Write for
Illustrated Catalogue.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.
And Northampton.



GOLD MEDAL "Bell" Grates

are in use at
Regent Hotel,
Leamington.
Savoy Hotel, London.
Cameron Hotel,
Swansea.
Cottage Hospital,
Clacton-on-Sea.
Northampton General
Hospital.
Queen's Hospital for
Nurses,
Junior United Service
Club.
Royal Southern Yacht
Club.
Union Club,
Birmingham.
Sandhurst College.
King Edward
Grammar Schools.
&c., &c.



The principal feature of
the CHAMPION CHIMNEY POT is
its magnificent updraft.

For many years the
"Champion" has been speci-
fied by LEADING ARCHITECTS
and has sold in large numbers.
Architects speak highly of
its SMOKE-CURING and VENTI-
LATION qualities, and admit
it to be of excellent design.

Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.
Ltd., 105 Albion St., LEEDS.

— THE — Universal Concrete & Construction Co. Ltd.

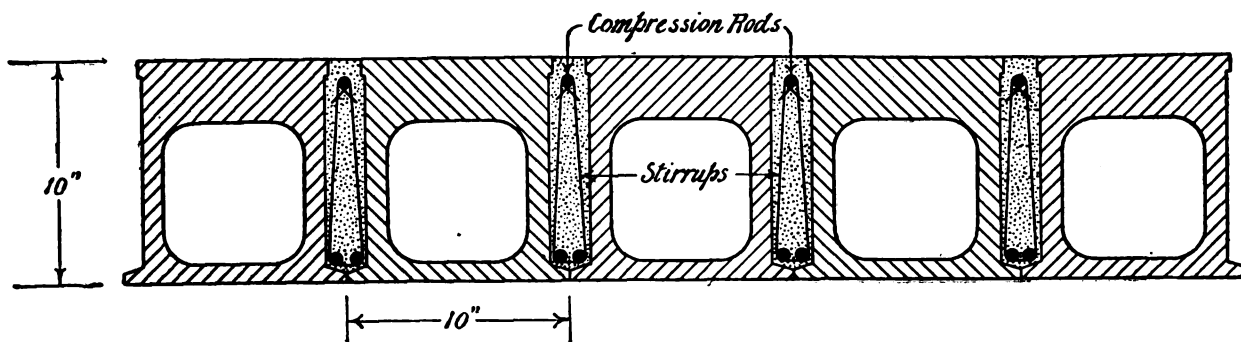
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans**
without Beams projecting below the Ceilings,
such as are required in Hospital Wards. Minimum depth and dead weight with the maximum
strength are obtained. **Flues and Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
Historical Monuments of Buckinghamshire	325
Whitehall as it appeared in the Reign of Charles I. (illustrated)	326
"The Architect" Students' Sketching and Measuring Club	326
Notes and Comments	327
Renaissance Architecture	328
Sketches by Mr. E. Borough-Johnson	328
Competition News	328
Illustrations:—	
Chinese Reception Room, Shanghai	328
Montagne des Arts, Brussels	328
View in Ghent	328
Guildhall, Rochester, the Staircase	328
Cast of Panel from the Vatican, Rome	328
Some Notes on Chinese Architecture and Building	329
Charles Cameron (illustrated)	330
The Evolution of Gas Lighting and Heating	332
A Curse of Civilisation	334
London Master Decorators' Rules	337

	PAGE
London Association of Master Stone-Masons	338
Action of Alkaline Water on Lead	343
Building Progress in the Provinces	343
British Patent Specifications	345
Correspondence	347

FORTHCOMING EVENTS.

Tuesday, October 14.

National Gas Exhibition: Conference on the Hygiene of Lighting and Heating, at 11 A.M.
Institution of Heating and Ventilating Engineers: Autumn General Meeting at University College, Gower Street, W.C., at 7 P.M.

Thursday, October 16.

London University: Carpenters' Company course of lectures opens on "The Work of the English Architects of the Eighteenth Century and on the Neo-Classic School of the Nineteenth Century," by Mr. A. E. Richardson, F.R.I.B.A., at 6 P.M.
Society of Architects: Paper entitled "Church Plate," by Mr. Christopher A. Markham, F.S.A., at 8 P.M.

Friday, October 17.

Royal Sanitary Institute: Provincial Sessional Meeting, Newcastle-upon-Tyne. (Two days.)

HISTORICAL MONUMENTS OF BUCKINGHAMSHIRE.

THE second volume* of the Royal Commission's Inventory of the Historical Monuments in Buckinghamshire, dealing with the Northern part, and so completing the inventory of the county, does not, at first sight, strike us so forcibly with a sense of admiration as did the first volume, but on closer examination we come to the conclusion that this is rather the result of the material at the disposal of the Commissioners for this section of the county, rather than of any falling off in the thoroughness of investigation or in the quality of presentation. North Bucks peculiarly reflects the general characteristic of the county as one secluded and little known to those living outside its barriers, boasting of little industrial activity and emphasising the description which is given in the historical summary: "Altogether, Buckinghamshire is a pleasant, quiet land—a land of competence without great wealth. The lack of industrial opportunities, and the prevalence of pasture, which requires less labour than agriculture, have had the effect of maintaining a small and unexpanding population. Hence many of the towns and villages have been in the past but slightly tempted to increase, and consequently have altered little as regards their general plan."

The historical summary, for which the Commissioners acknowledge their indebtedness to Mr. W. F. Page, F.S.A., general editor of the "Victoria County Histories," and an Assistant Commissioner, forms the commencement of the volume, and deals with Buckinghamshire as a whole. The history of the county is very fully, as well as interestingly, described, and gives those details with regard to the life of its inhabitants at different epochs that make the study of ancient monuments intelligible. In speaking of the architectural status of the county, the writer remarks on the points of resemblance between the buildings in Buckinghamshire and those of immediately adjacent counties, thus indicating that from an architectural point of view the county division is not altogether a satisfactory basis of study in classification. Buckinghamshire generally, we are told, provides few local types of ecclesiastical architecture. There is, nevertheless, a considerable variation of design and material in its different quarters which becomes more marked as the barriers of the neighbouring counties are reached. Thus, the use of flint and clunch is mainly confined to the South and East, and the churches built of these materials bear distinct affinity to the churches

of Hertfordshire. Again, the small lead-covered spirelets so typical of Hertfordshire are also met with along the Southern and Eastern borders. In the North and North-West stone churches approximating to the Northamptonshire types occur, such as Leckhamptstead and Tingewick, and the spires of Olney and Hanslope show the same influence. Indeed, we can hardly realise that Olney and Hanslope are Buckinghamshire churches, so closely are they in accord with the character of the Northamptonshire buildings just over the border. Along the Oxfordshire border is a group of stone churches of different types, of which Twyford, Marsh Gibbon, and Ickford are examples. In the North-East, walling of ironstone with some pebbles similar to that used in Bedfordshire is not uncommon, and the churches at Linslade and Milton Keynes are more or less like those of Bedfordshire. The fourteenth-century chancels at Olney, Emberton, and Milton Keynes form, however, a group which provides a style of work peculiar to this district.

Another local peculiarity is shown in the foiled circular windows in the clerestories at Bletchley, Padbury, &c. But, taken as a whole, the ecclesiastical architecture of Buckinghamshire does not reach a high level. With comparatively few exceptions, the churches are neither large nor of rich and fine design, and few would attract much attention in such counties as Northamptonshire or Norfolk. But even if the ecclesiastical architecture of Buckinghamshire does not reach high-water level, it nevertheless possesses plenty of interesting examples well worthy of the attention of the student, and for practical education it is probably more valuable for the novice in architecture to develop his talent with regard to small things than always to be aspiring to the academic conception of architecture with a capital A. The English student would do well to temper the present tendency to study architectural design in the manner of the Ecole des Beaux-Arts, which our colleges and universities and our ateliers are now inclined to push to an unwise extreme, by wandering amongst the Buckinghamshire villages on foot or on cycle with sketch-book and rule, measuring and studying the unpretentious examples of both ecclesiastical and domestic work that are to be found in the county.

The secular architecture, as well as the ecclesiastical, is in Buckinghamshire modified by the influence of the neighbouring counties. Along the Northamptonshire border stone rubble houses are common, as at such places as Calverton, Lavendon, Tingewick, and Stoke Goldington. The majority of the houses, however, are of plastered timber, but though this timber construction is common, it never developed beyond a simple type, and

* Royal Commission on Historical Monuments (England). An Inventory of the Historical Monuments in Buckinghamshire. Volume II. (London: Wyman & Sons, Ltd. Edinburgh: H.M. Stationery Office. Dublin: E. Ponsonby, Ltd. 16s. 6d. net.)



WHITEHALL PALACE AS IT APPEARED IN THE REIGN OF CHARLES I. 1648. From a Model by JOHN B. THORP. River Front, Showing Privy Stairs and Banqueting Hall, in the Background.

there is nothing that approaches the elaboration of the ornamental panelling, &c., of Lancashire and Cheshire. It is also noteworthy that, owing to its elastic qualities, timber framing, here as elsewhere, is a marked characteristic of the clay districts. The plastering is usually quite plain, and the combed work and pargeting of Hertfordshire and Essex is very rare. Brickwork is not very common. It is generally of fairly late date, and offers no outstanding peculiarities. Nevertheless, a considerable number of sixteenth-century chimney-stacks have shafts ornamented with moulding or panelling.

The county is not rich in great houses, though such buildings as Creslow and Gayhurst would be notable in any district of England; and other good houses are Chequers, Dorney, Dorton, Hartwell, and Denham. The especial charm which we pointed out in our review of the first volume of the inventory of Buckinghamshire in the character of the secular buildings of moderate size is lacking in the Northern district, where there appear to have been considerable tracts of uncleared forest land to a comparatively late date.

The sectional preface, as in the former volumes, precedes the detailed inventory, and deals with the general distribution of examples of particular types of monument such as earthworks, Roman remains—in both of which North Buckinghamshire is generally deficient—ecclesiastical and secular architecture under various headings, classifying the examples according to typical characteristics, bridges, village crosses, and various types of fittings. This volume, as the preceding, is illustrated with numerous admirable photographic views, both general and detailed, and with plans to scale of some of the more interesting or peculiar examples. The latest volume of the inventories maintains the character and standard of those that have previously appeared, as being an absolute necessity for the student of architectural and other art included within the elastic term of "historical monuments."

WHITEHALL AS IT APPEARED IN THE REIGN OF CHARLES I.

LIEUTENANT-COLONEL LEETHAM, the Curator of the Royal United Service Museum, commissioned Mr. John B. Thorp a few months ago to reconstruct, in model form, the Palace of Whitehall as it appeared at the time of the execution of the ill-fated Monarch. The model, which is now finished, has been presented to the museum by Colonel Leetham. It has been made to a scale of one two-hundredth full size, and extends from Scotland Palace on the north to the bowling green and King Street on the south, from the Thames on the east to St. James's Park on the west, and covers a space of about 25 square feet.

The view given shows the north-west corner of the model.

and the classic building in the centre of the picture is the only portion of the Palace that is standing at the present day. It was on a scaffold in front of this building that the King ended his eventful life. It was then known as the banqueting hall, and was the commencement of what would have been one of the finest buildings in the world, had Inigo Jones, who was the architect, been able to carry out his ideas. To the left of the banqueting hall is the entrance to Scotland Palace, and on the right is seen Holbein's Gate, which was erected by Henry VIII. from designs by Holbein the painter; opposite to the hall was the tilt yard.

Lovers of Old London should be greatly interested in the model, as it shows what Whitehall was like at the early part of the seventeenth century. The long stone gallery facing the privy garden, the cock pit, Cromwell's house adjoining the great hall, in which some of Shakespeare's plays were read, are all shown, while the river-front, with its cluster of Tudor buildings, and the privy stairs have been carefully worked out.

Mr. Thorp, whose well-known models of Old London are now permanently exhibited at the London Museum, has made a special study of the topographical history of the City, and he is now engaged in constructing a large model of the Tower of London in the year 1600, which will be shortly seen at one of our well-known London museums.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

WE are surprised as well as disappointed to have received only two contributions of measured drawings of a nave arcade of thirteenth or fourteenth-century date. The study of such examples is, we consider, essential to the proper education of every architectural student, but we may perhaps trace in this avoidance of such study the early operation of the mischievous latest revision of the syllabus of the examinations of the Royal Institute of British Architects. When students are practically told by the Board of Architectural Education that the study of mediæval architecture is by them considered non-essential, if not actually discouraged, it is hardly surprising that Gothic architecture should be omitted from his programme by the student who has R.I.B.A. examinations before him.

The two examples we have received are both good, well selected and well studied.

"Improver" has measured and drawn the nave arcade of Lanercost Priory, Cumberland, an early thirteenth-century example of much refinement and simple dignity, the sort of work that is beneficial to the taste of any young architect, though he should never design a bit of Gothic in all his subsequent career.

"Y Ddraig Goch" has drawn a piece of fourteenth-century work, the nave arcade of Finedon Church,

Northants, which, though different in character, is also well worthy of study and has much subtle thought in its detail.

We award prizes of one guinea to each of our contributors.

NOTES AND COMMENTS.

A WRITER in the *Times* discusses the influence on the preservation of ancient churches of the present system of faculties and the extent to which alterations to ancient churches are at present under control. The writer well refers to the evidence that has been acquired by the present Royal Commission on Historical Monuments as to the superiority of the condition of ecclesiastical as compared with secular ancient buildings, and it is pointed out that all parish churches are under the supervision of archdeacons and rural deans who inspect them frequently and, on the whole, do their work well. But there is a distinction between keeping a historical monument in good repair and preserving its historical value. A building may very readily be mended by unwisely and unnecessarily removing old material and substituting that which is new and sound, but the historical value of the monument must necessarily have suffered in the process. The gravamen of the charge that has been brought against the present system of faculties is that these are too readily granted, so that under a specious claim for repair or improvement irreparable mischief has been done to the historic value of ancient churches. The writer in the *Times*, with no little justification, points out that there is no unanimity in art, and that if faculties have to wait until experts are agreed none would ever be issued, for there will always be differences of opinion, and he particularly refers to the disagreement in the case of Christchurch, Hants, between Sir Thomas Jackson, R.A., and the Society for the Protection of Ancient Buildings. The weak point about the present system of faculties is that the granting of a faculty becomes a quasi-private transaction between the individual parish and the Chancellor. In many, if not in most cases, the diocesan officers, namely, the bishop, the archdeacon, and the rural dean, may hear nothing at all about it. In any case, they have no *locus standi*. As the Chancellor of Ripon Diocese recently said in the Studley bowl case: "Neither bishop, archdeacon, nor rural dean, although to a certain extent responsible for the arrangements of the church, had any voice there." The remedy suggested by the writer is that in every diocese the bishop should appoint a competent advisory board which must be consulted before a faculty is issued for any alteration to the fabric of a church. On the advisory board there would, no doubt, be representatives of every archaeological society within the diocese as well as some church officials, such as the diocesan architect, when there is one, the archdeacons, &c. The merit of this suggestion is certainly superior to that proposed by the Joint Committee of Ancient Monuments in dealing with the question of faculties in their report, their recommendations being: "The Committee hope that the bench of bishops may take this matter under early consideration with a view to taking collective action. They would, however, suggest that in all cases where a faculty is asked for a public advertisement in the principal papers circulating in the diocese should be published with a notice that the plans might be examined in the Diocesan Chancery, and a reasonable interval should be allowed within which criticisms or suggestions might be sent to the Chancellor. They think, further, that whenever serious criticisms are made the Chancellor should secure the advice of a small committee, say three competent architects of repute, and that in granting the faculty due regard should be had to their report, such report and the final form of the faculty being made public." The advisory board would consist of people who would take an interest in the particular church for which a faculty was asked and would not simply look at the matter from the legal business point of view of the chan-

cellor of a diocese, and by the scheme proposed it would be of enormous advantage that matters affecting the fabric of a church must be brought before those who are interested instead of leaving them to the hap-hazard, and not altogether easy, investigation of those who might or might not be disposed to recognise the inadvisability of an alteration.

Weak points in the procedure of the Housing and Town Planning Act have come forcibly to the notice of the Town Planning Committee of the Birmingham City Council, and have led them to suggest amendments to the procedure regulations of the Local Government Board which they believe will simplify and cheapen the proceedings. Endless trouble has arisen by the inability of landowners to offer opposition or even to understand the scope of general schemes which local authorities have to obtain permission to prepare, and the gist of the Birmingham suggestion is that the scheme should be further elaborated in detail before the Local Government Board's inquiry is held. Thus landowners would be in a better position to understand how far their property would be affected, and the preparation of the details would enable the local authorities to consult and negotiate with landowners before details were settled. Thus much unwilling opposition which is inevitable under the present procedure would be avoided.

It is not surprising that the Town Hall Committee of the Manchester City Council have intimated that they do not wish at present to go forward with the scheme for the extension of the Town Hall, not because they do not realise the necessity for increased municipal accommodation, but on account of the opposition which has arisen even before the full details of the scheme were published.

The impracticability of Mr. Lloyd George's land taxes has received further illustration by a correspondence which has passed between the Chancellor of the Exchequer and the Chairman of the Trafford Park Estates, Ltd., Manchester, on the subject of undeveloped land duty under the Finance Act, 1909-10. This illustrates what we have before pointed out, that undeveloped land duty, as at present exacted, hits hard those owners of property who would be only too pleased to see their land developed. The Trafford Park Company acquired 1,183 acres and obviously could not immediately dispose of or develop the whole of their property. Five hundred acres have been sold, leased, or built upon by the company, and they are naturally wishful to dispose of the remaining 580, but are called upon to pay £1,099 undeveloped land duty in respect thereof for the year 1912-13.

Recent increase in the cost of building is assigned as a reason for the tenders that have now been received for the restoration of Paisley Abbey so far exceeding the original estimate, and Mr. J. Stewart Clark, accepting this explanation, has, we are glad to learn, intimated that he and his sisters are prepared to increase their original gift of £30,000 to £40,000.

We have received a very interesting report from the British Fire Prevention Committee giving an account of fire tests with two doors made by Chubb & Son's Lock and Safe Company, Ltd., one being a door encased with steel sheeting, the centre reinforced with steel bars and filled in with concrete hung on runners and made to slide, fixed on the inside of an opening; the other a similar door, but hung on hinges fixed in a reveal on the inside of the opening. Mr. Ellis Marsland, in his note prefacing the report, says: "Considerable thought and ingenuity has been exercised in designing the doors the subject of this test and in fitting them to the openings. The testors' partially successful efforts to produce a single door which is able to do the work of two iron doors required under the London Building Act are a matter of

considerable technical importance. The radiation of heat through the doors was very small, and at 14 in. (0.305m.) away it did not exceed 125° F. (51.6° C.). It is always more difficult to make a sliding door flame proof around the edges than one that is hung into a reveal, but in time this problem will no doubt be overcome." Both of these doors showed remarkable power of resistance to the effect of a fire lasting four hours, gradually increasing to 180° Fahr., and the door hung on hinges was successful in obtaining a classification of "full protection, Class B." We can congratulate Messrs. Chubb & Son on the success of their efforts to devise a really efficient fire-resisting door.

RENAISSANCE ARCHITECTURE.

MR. BANISTER FLETCHER, F.R.I.B.A., on Monday last gave the first of twenty-four University Extension Lectures on "Renaissance Architecture" at the Victoria and Albert Museum.

He described the nature and scope of the subject which has become a necessary part of a general education; for architecture is a material exponent of civilisation, a record of human aspirations and activities, and modern design is founded upon ancient precedent.

Thus a knowledge of architecture, more especially of the Renaissance style which comes down to our times, should form part of the equipment, not only of the architect, but of artists and craftsmen, antiquaries and connoisseurs, photographers and journalists, and even of authors, for a story without the mise en scène supplied by buildings is like a play without stage scenery. Teachers now realise that architecture is more necessary than dates for understanding general history and the social life of our ancestors. For the traveller, too, such knowledge is essential to appreciate the purpose and design of the buildings and ruins that he visits, while those who cannot travel will be transported by the aid of some 1,200 lantern views to the actual buildings and their surroundings.

Mr. Fletcher reviewed the evolution of ancient and mediæval architecture that led to the Renaissance style, which at this very moment is being used for the re-facing of Buckingham Palace. He dealt with the influences of the period; such as the writings of Dante, Petrarch, and Boccaccio, the newly discovered MSS. of the Classic authors, the fall of Constantinople, the inventions of gunpowder, the mariner's compass, and printing; all of which helped to promote that new spirit of enquiry which led to the Reformation.

From Florence the new style spread in the sixteenth century through Europe, modified by local influences, such as climate, material and historical events.

The lecturer showed Renaissance buildings in Italy, France, Germany, Belgium, Spain and England, and said that he should endeavour to introduce the atmosphere of the Renaissance and show the connection between history and architecture, and hoped that at the end of the course they would so appreciate old buildings and their associations as to help forward the improvement in English architecture. The remarkable examples of Renaissance architecture in the Museum will be systematically studied, and thus the utility of the Museum will be developed.

The lectures are given every Monday at 5 p.m., in the Lecture Theatre of the Victoria and Albert Museum, South Kensington, S.W.

The next lecture will be "A Comparative Analysis of Mediæval and Renaissance Architecture."

Particulars can be obtained from the Hon. Sec., 10 Woburn Square, W.C.

SKETCHES BY MR. E. BOROUGH-JOHNSON.

At Mr. W. B. Paterson's gallery, No. 5 Old Bond Street, metropolitan visitors are being shown a small collection of studies in pencil, chalk, and charcoal by Mr. E. Borough-Johnson. Many of them are the profitable results of study in Norway, Holland, and Brittany. The artist's style is vigorous, and is especially praiseworthy in "Study of a Dutchman's Head" (13), "Colonel Sir Charles Watson," "Carting Fish, Etaples," "Sketch of Old Man" (35), "Toil," "The Ice-cream Barrow," "Homewards" (8), "The Fishwife, Etaples," and "Study of a Girl's Head" (6). Other work, too, merits appreciative attention, the tone throughout being good and above the average of somewhat similar shows.

COMPETITION NEWS.

BLACKBURN.—Eleven sets of plans have been submitted by local architects for the proposed new fire station and firemen's dwellings on the Wrangling, and it is expected that the assessor, Mr. F. G. Briggs, F.R.I.B.A., will make known his award in the course of a few days.

LITTLEBOROUGH.—Mr. A. G. C. Harvey, M.P., has purchased about forty acres at Summit, near Littleborough, with the intention of carrying out an experimental housing scheme. The estate is now being surveyed, and it is stated that competitive schemes may be obtained for its development.

ILLUSTRATIONS.

A CHINESE RECEPTION ROOM.

The drawing by Mr. A. Llewellyn Tayler shows an example of modern Chinese architecture described in the article by that gentleman.

MONTAGNE DES ARTS, BRUSSELS—VIEW IN GHENT.

THESE reproductions of pencil drawings by Mr. Frank L. Emanuel are interesting both as examples of skilful draughtsmanship and of picturesque Belgium.

OAK STAIRCASE IN THE GUILDHALL, ROCHESTER.

THE extreme simplicity and the well-defined details are the chief characteristics of this fine old staircase. The newels, handrails and balusters are vigorously handled. A very modern ceiling just above the cornice level has somewhat spoiled the general appearance, and the fine old plaster ceiling is hopelessly lost upon the low room formed by the new floor. It has been generally attributed to Wren, but the opinions of various authorities differ upon the subject.

CAST OF PANEL FROM THE VATICAN, ROME.

WITH Italian work one naturally associates modelled plaster-work and frescoes, and there are many beautiful and elaborate examples to be found. In the early period the two were combined, but were very often out of scale with the architecture and immediate surroundings. This drawing, by "Plato," as also that of the staircase at Rochester, was awarded a prize in the monthly competitions of "The Architect" Students' Sketching and Measuring Club.

A MEMORIAL to the late Mr. John Parker, F.S.A., the well-known Buckinghamshire archaeologist and historian, has been placed in the chancel of the parish church at High Wycombe. It consists of four figures of St. Hugh, St. Wulfstan, St. Friedeswide, and St. Catherine, who were respectively identified with the diocese. Mr. Parker was for many years a churchwarden at High Wycombe, and a member of the Bucks Archaeological and Architectural Society.

MESSRS. ELLIS, SON & BOWDEN, architects, Exeter, have been instructed by the Devon County Council to prepare plans for a sanatorium to be erected on the recently-purchased Hawkmoor Estate. The approximate estimate for buildings carried out in wood is as follows:—Four pavilions: Eighty beds at £65 per bed, £5,200; dining-hall and patients' sculleries, £1,000; two recreation rooms, £900; kitchen block, £1,200; cooking apparatus, £200; covered ways, £500; water supply, £350; land drainage, £100; drainage system, £500; sewage outfall, £275; road-making and paths, £250; telephones and electric bells, £155; heating, £1,150; hot water supply, £590; total, £12,370. Children's pavilions for twenty beds, with kitchen and dining room—allow £100 per bed, £2,000; electric lighting, including station, £1,750 to £2,000; laundry building and plant, £1,200 to £1,400.

At a special vestry meeting held last week at the Bath Abbey, it was resolved to apply for a faculty for the reconstruction of the hitherto divided organ in the Abbey Church as a single organ on an oaken loft, after a design by Sir Thomas Jackson, R.A., to be erected in the north transept of the church, and for leave to alter the positions of a few monumental tablets. Further, it was resolved to ask for the removal and disposal of the modern stone screen now forming the lobby to the great west door of the church, which darkens the end of the church, which is of no utility, and is an addition of some 40 or 50 years ago, quite out of character with the strength and solidity of the Abbey structure and unworthy of it.

SOME NOTES ON CHINESE ARCHITECTURE AND BUILDING.

By A. LLEWELLYN TAYLER.

At a time when the throes of repeated revolutions and upheavals are heralding the most interesting transitional period of her history, when the eyes of the world are centred on her struggles for "enlightenment," it is small wonder that one returning from the Far East should notice how the arts of China are claiming the attention of designer, decorator, and architect. This, perhaps, is more strongly evinced by the prevailing taste for Chinese interior appointments in the shape of lac furniture, carpets, hangings, and the general accessories of furnishing. The interior decorations "in the Chinese style" to be seen, whether designed as complete schemes or merely as "settings" to costly pottery, cloisonné, bronzes, and enamels, disclose to the initiated a lamentable ignorance of a native art which for picturesqueness, national expression, and good taste stands inferior to none on the globe.

It has been alleged that there is a certain monotony about Chinese architecture, but it is a question whether this is much more marked than in the national style of any other country, for it must be conceded that, to some extent, the architectural interest of the towns and cities of Western countries is due to the variety of styles adopted for their civil, religious, public, and domestic buildings. The importance given to the preponderating mass of the roofs of Chinese buildings with the curvilinear tilting of the corners and the observance of symmetry in plan in the temples, palaces, yâmens, and public buildings; the consideration of climatic conditions; the materials of construction used; the influence of geomancy and the imposition of strict sumptuary laws accounts largely for the sameness of the architectural model usually followed. This is, however, compensated for by departure from formal rule in the studied irregularity of their summer residences and gardens, in which the caprice of the architect, in flights of boundless fancy, delights in designing an unexpected surprise at every turn.

If pagodas, Chinese temples, and palaces are outside the requirements of British architects, their kiosques, pavilions, and houses might be turned to account, and in their profusion of decorative detail and immense diversity of ornamentation there is a wealth of suggestion for the architect and designer, who by able handling can use it to infuse new life and interest in his work.

Chinese buildings are primarily of wood construction, a multiplicity of columns being required to support the massive weight of the roofs, on which every attention in the form of decoration and enrichment is lavished. This timber construction accounts for there being but few ancient buildings; those dating back but a few hundred years have been frequently repaired and often rebuilt in that period. The walls of the cities, the pagodas, and, of course, the Great Wall, are among the few permanent structures and these, together with numerous sculptured monuments and bronzes, are sadly ruined by neglect, sacrilege, and vandalism. There is badly needed an archæological society in China, in which the sympathies of the native "literati," as well as the foreigner of every nationality, should be enlisted. This is particularly needed at the present moment, when her arts through neglect for decades past have been allowed to languish into a decadent state, and when absolute indifference to her priceless possessions is manifested among the would-be reformers, who display only marked antipathy to all that pertains to the old. Something, too, might be done to preserve and encourage her national style in its purity, for it is already suffering the baneful influences of a misinterpreted Westernisation—poor, incongruous details being served up with native form, meaningless and misleading.

The Chinaman seems to have anticipated modern construction, for there is something curiously analogous in the erection of his fabric to the up-to-date building of skeleton steel framework and dummy walls. The walls of Chinese buildings are not built up as supports, but fill in the spaces between the columns, and these spaces for the whole side of an apartment are frequently occupied by windows and doors. Houses and other structures are often to be seen with nothing but the pillars and the roof. The walls are built of whole kiln-burnt bricks of two shells, without any cross-binding, and the middle portion is filled in with rubble and mud. For economical reasons the walls are also run up hollow. This conduces to dryness and warmth, the mud filling being objectionable in wet weather. Internally the walls are plastered with white lime. A tolerably effective

damp-course is formed of a layer of lime or slate or tightly bound millet stalks laid crosswise all round above the foundations. Tiles are in universal use for roofing. They are warmer in winter and cooler in summer than slates. Glazed tiles of brilliant yellow, green, and blue were used, but the colours for the particular edifice were never chosen at random or to suit the taste of an individual, but were dictated by the sumptuary laws which denoted the rank of the owner or indicated its Imperial consequence.

Temples and buildings of importance are covered with round tiles, laid in furrows, the terminals over the eaves being decorated and having a lip-like tile between the finish of the furrows. Beneath the tiling is a thick bed of mud and plaster sufficient to guard against leakage and to prevent changes of temperature cracking the joinings of the tiles. The furrows harbour dust, fallen leaves, and débris to such an extent that it is a common sight to see vegetation springing up in these hollows. The tiles of private houses are comparatively flat, though of a rounded surface. They also have flat roofs surrounded with a balustrading, which are used for drying and sunning purposes. The floors of the poorer houses, which are principally of one storey, are of earth, but temples and public buildings are laid with large square bricks, sometimes glazed, or flags of stone and marble. Boarding is not much used, especially for houses, as wood is too expensive to be thus employed, and the thick-soled native boots and shoes, together with the warm padded garments worn in the winter, do not render it so necessary. Perhaps this is as well, for in a country where the most elementary laws of sanitation are ignored boarded floors, with their seams, cracks, and joinings, would form fine harbours for every species of germs of contagious diseases. Buildings are always raised above the ground, or the courtyards are lowered sufficiently to prevent inundation. There are no cellars, and houses always consist of an odd number of apartments—three, five, seven, &c. Shops are built with their entire breadth open to the street, and business is thus carried on to a great extent in the open-air. The fronts of the business premises of wealthy native "Hong" are most elaborately treated, but the profusion of detail, which, from its position, is often unreadable, detracts rather from an otherwise imposing appearance, resplendent as they usually are in vermilion and gold.

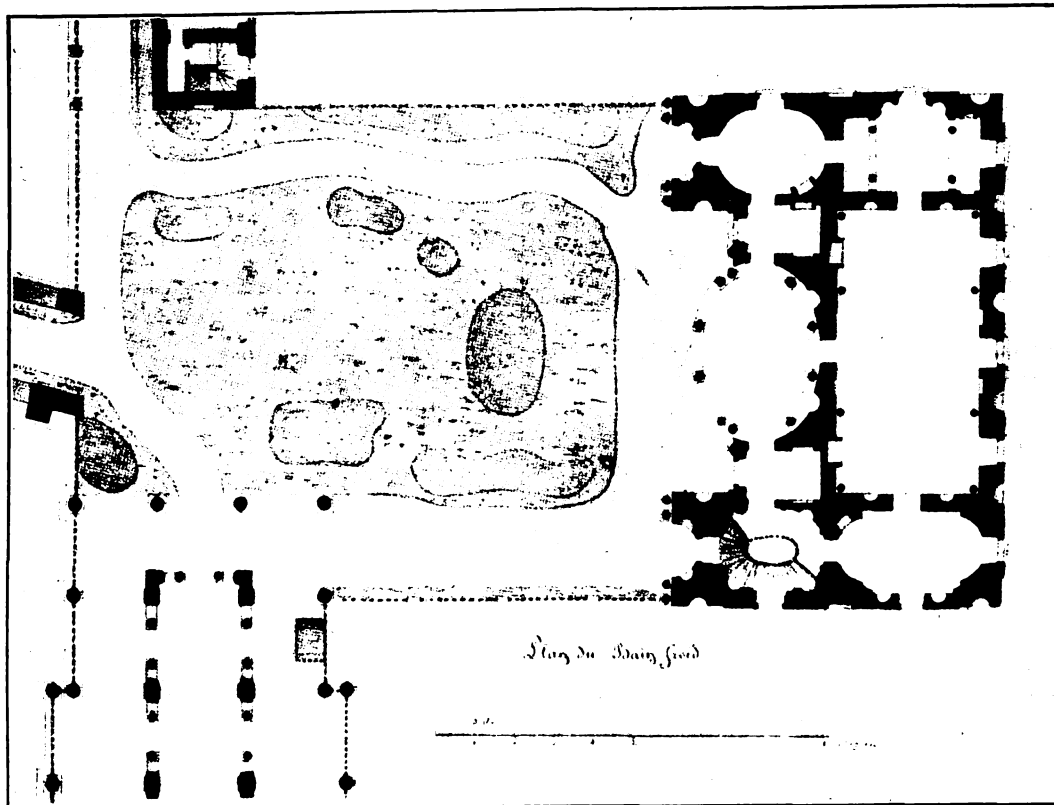
The Chinese geomancers control to a large extent the erection of buildings. They inspect the locality, and consider its relations to neighbouring property and natural objects, out of deference for the popular superstition of "feng shui" "wind water" influences before deciding on the selection of a site or the laying of the ridge beams and corner stones. This is to court success and prosperity, and to avoid calamity, disease, and death. Buildings supposed not to have been erected in accordance with "feng shui" influences have been known to be pulled down and rebuilt at a different angle to their surroundings, or they have been vacated and allowed to remain unused. That the geomancers have also an artistic sense is evidenced by the choice of sites for temples, &c., which are to be found beautifully situated on the hills, or nestling in the seclusion of valleys amidst clumps of wood and banyan trees. In Germany the completion of the masonry of houses is celebrated by elevating a tree or bush to the top of the structure. In China a bunch of twigs or small bush is tied to the top of every erect scaffold pole during the construction of a building for "good joss" or success.

Ornamentation plays a prominent part in buildings of any size or significance, in the interiors as well as outside. Columns to which are assigned a function of so great an importance have a special feature made of their bases, these being elaborately designed and well chiselled in stone. The shafts of columns are of wood, generally cylindrical or square, but sometimes polyhedral. They have no capitals, but truss-like brackets or carved consoles jutting from the shafts beneath the beams, which are richly carved and brightened with colour or gorgeously painted.

Where ceilings are flat they are treated with geometrical sunken panels, worked in relief or lacquered with dragons, bats, storks, birds, and floral designs amidst conventional cloud effects.

Chinese ornamentation, as the lines of their buildings, should not be confounded with Japanese. Though there may be (to those but slightly conversant with the arts of the Far East) a general family likeness, the differences are so real as to constitute distinct styles.

The inside ornamentation of the better-class houses and of reception-rooms in public buildings consists of rich panelled partitions of hard wood, or of two woods of varying colour,



PLAN OF BATH HOUSE AND GALLERY, TSARSKOIE SIELO

waxed or varnished. The panels on a level with the eye are sometimes elaborately carved or filled in with paintings and Chinese writings, surrounded with a border of typically ingenious tracery, which is also to be found round the window panes that were formerly of paper, of intricately and mostly elegantly devised frets, over arching recessed openings and doorways, of furniture of hard, dark southern wood, dull polished or inlaid, of embroidered satin or silk hangings, of loose coverings for chairs, tables, lounges, and stools, of handsomely coloured silk, horn, and wood and glass lanterns hanging from beams and ceilings, and of porcelain vases, bronzes, cloisonné, &c.

The sketch of a Chinese reception-room from the Bankers' Guild at Shanghai gives a fair general idea of the interior decoration and the arrangement of furniture in a room of this description. The arched ceiling here is a very effective feature, the plaster showing white between barrel-shaped laths of dark wood—Ningpo—varnished.

The ornaments on the long side-table are of pewter, and form a set of five, consisting of incense burner, candlesticks, and flower vases, used for "joss" purposes. The doors on the left lead into a shrine of the God of War and the recess beyond is occupied by a double lounge with table in centre and the usual stools and cuspador, without which no Chinese room would be complete.

The Shanghai Bankers' Guild is a building of comparatively recent erection, but is an excellent example of native architecture, purity of style being closely adhered to and apparently no amount of money being spared to make it complete in every detail. Unlike most Chinese buildings, it is tenderly cared for, being kept astonishingly clean. The gorgeous fronts of its shrines and theatres, with their side galleries, are boarded up during the summer months to preserve them from the fierce blaze of the sun. The guilds of China have many points of resemblance to those of Europe, but, whereas in Europe the function of the guilds, the protection and promotion of the interests of merchant and craftsman, no longer exists, the conditions in China keep them as active and effective as ever. No doubt these are soon to be changed, and China's guilds will be reduced to a state of innocuous desuetude; but at present her guilds, like many other of her institutions, illustrate the Mediævalism from which she is now emerging. The guilds command an almost unrestrained control over their respective trades, having for ages past grown up quite independent of the Government.

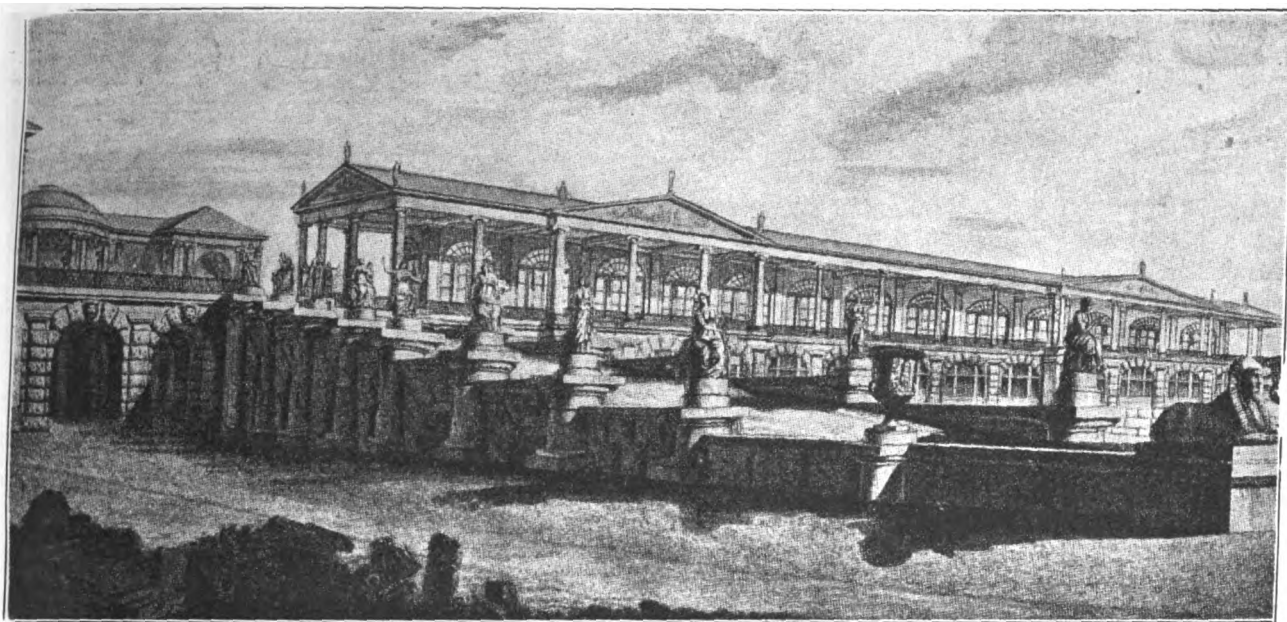
Chinese architecture, as a whole, deserves much more consideration than has yet been bestowed upon it, the more so

because it is a distant and but little-familiar field of study. A better understanding of it would dispel many erroneous conceptions that have been formed from so many misleading articles that have been published regarding it, and an examination of its wealth of detail would well repay the student or designer looking for fresh inspiration.

CHARLES CAMERON.—I.

We had occasion in these columns recently to allude to the wonderful advance of architecture in Russia during the reigns of Catherine II. and Alexander I. In surroundings of utter barbarism, with the downtrodden serfs as the foundation of the whole political and social system and a sprinkling of enlightened noblemen as decorative element, faintly reflecting the European culture, there sprang up miraculously a flower of untold beauties, the Classic architecture of the two reigns mentioned, so exquisite, refined and noble, and so strikingly in contrast with the meanness of the surrounding life. What a phalanx of brilliant talents—Cameron, Quarenghi, Tommon, Zakharov, Voronikhin, Rossi, Kazakov, and Jillard—yet who knows of their achievements outside of the country where they created their masterpieces? And that gifted artist Charles Cameron, who left his native Scotland to apply his genius to beautifying the residence of a foreign ruler—what is known of him in the land of his birth? Alas! practically nothing. We cannot therefore but feel grateful to M. Igor Grabar, who is now publishing in Moscow an exceedingly interesting "History of Russian Art," for the opportunity he affords us of introducing Cameron's work to English and Scottish readers. M. Grabar is himself a well-known Russian painter and student of art, and his account of Cameron is full of deep appreciation and sympathy for the artist. In the following lines we propose to give a summary of the chapter dealing with Cameron's life and work.

Biographical data of the man are extremely scanty. Neither is M. Grabar able to give us any particulars as to Cameron's birth and death. For the first he gives an approximate date of 1740, and for the second some time between 1812 and 1820. Our independent attempts to elicit these facts proved as little successful. The paragraph in Redgrave's "Dictionary of Artists" contains nearly all that is known of Cameron by compilers of English reference books. It runs as follows:—"Cameron, Charles, architect. Practised in the latter half of the eighteenth century. He published in 1772 a large folio work on the 'Roman Baths,'



CAMERON'S ORIGINAL DESIGN FOR GALLERY.

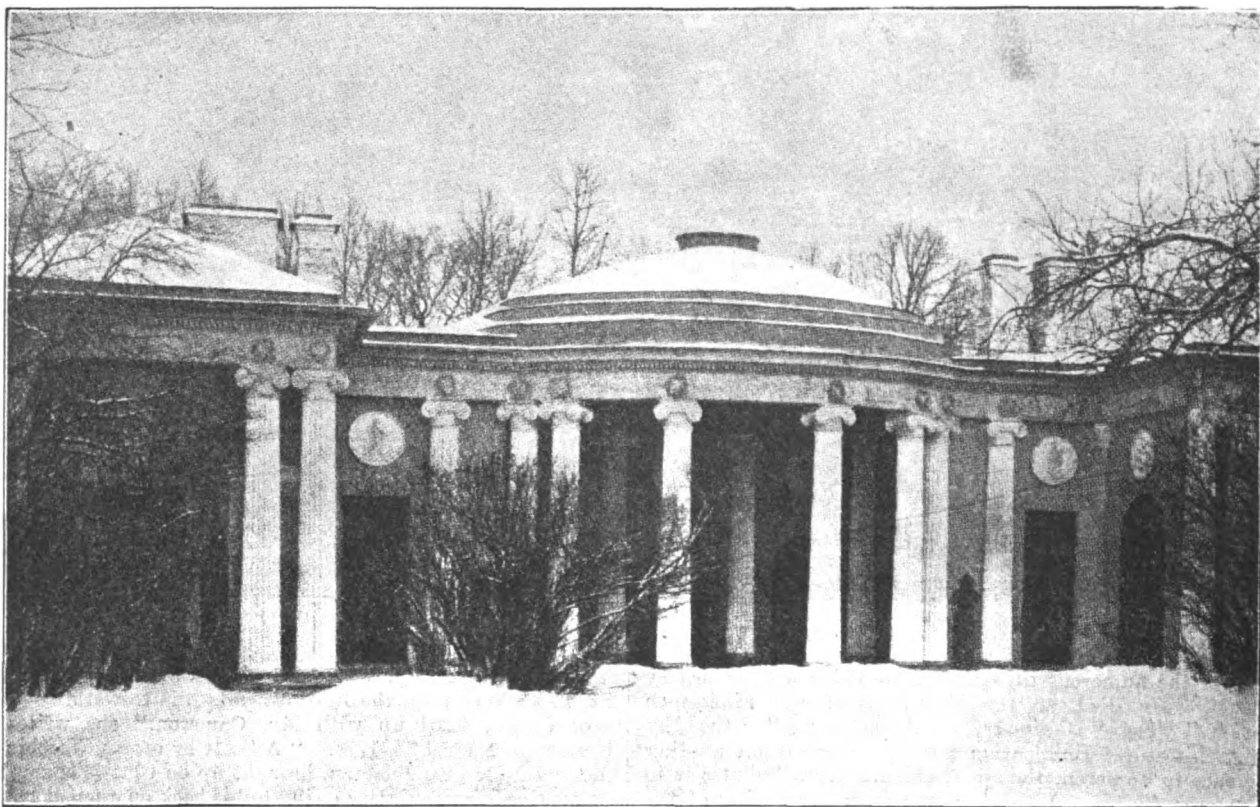
many of the numerous illustrations to which were etched by himself. He died at the beginning of the nineteenth century." The "Dictionary of Architecture," issued by the Architectural Publication Society, contains yet another reference to Cameron, though it erroneously attributes it to "Cameron (G. . . .)," as distinct from the author of the book on "Roman Baths." Here is the reference: "Granville, 'St. Petersburg,' London, 1828, mentions 'Cameron, the Scottish architect, who has left so many creditable monuments behind him at St. Petersburg,' but does not specify any of them; and J. L. Bond exhibited at the Royal Academy of Arts at London in 1793 a perspective elevation of a triumphal arch to be erected in the Crimea by G. Cameron, Esq., architect to the Empress of Russia, probably at Bagchiserai." And this is all we could ascertain in the various books of reference. Neither could we trace any reference to our architect in "The History of the Camerons," by Alexander Mackenzie, otherwise so detailed and complete. Thus the biography of one of the ablest of British architects still remains to be written, affording the future historian ample scope for enterprise and energy. Meanwhile we must be content with mere descriptions of his works in Russia, amongst which that by M. Grabar is the most complete and reliable.

As mentioned above, in 1772 Cameron published a book on Roman baths, the only monument of his work that was accomplished in England. The exact title of the book is as follows:—"The Baths of the Romans, Explained and Illustrated, with the Restorations of Palladio Corrected and Improved, to which is Prefixed an Introductory Preface, and a Dissertation Upon the State of the Arts During the Different Periods of the Roman Empire." As the title suggests, the work presents a reproduction of the designs by Andrea Palladio, and, as subsequent examination proved, of the designs brought over to England from Italy by the Earl of Burlington, to whom Cameron's work is dedicated. The independent work of Cameron consisted principally in checking on the spots the plans of Palladio and in developing the ornamentation of the interiors, in which latter case, however, he was greatly influenced by the popular, at that time, designs of the French architect Clerissaux. Anyhow, his studies in Classic architecture had already made him an accomplished master of his art when fate suddenly brought him to St. Petersburg. The date of his arrival in St. Petersburg is defined as 1779. The Empress Catherine II. was engaged at that time in reconstructing her palace at Tsarskoie Sielo, a suburban residence of the Russian Tsars, a few miles from St. Petersburg. Catherine's passion for building was quite exceptional. In her letter to Friederich Grimm, the well-known Paris diplomatist, author, and royal correspondent, she wrote: "The building rage is dominating us now more than ever before; an earthquake hardly ever destroyed as many buildings as we set up; constructing is a kind of devilry, devouring no end of money. And the more you build the more you wish to. It is simply a disease, something like tipping, though possibly it's only a kind of

habit." Naturally, no sooner does Cameron appear at St. Petersburg than the Empress puts him to work. "Just now I have fixed up with Mr. Cameron," she writes to Grimm on August 23, 1779. "A Scott by origin, Jacobin in ideas, a great draughtsman, brought up on Classic examples, he attained to popularity owing to his book on ancient baths. We are now trying with him to build here a terrace with suspended gardens, a bathing-house below and a gallery above. This will be 'beautiful, beautiful,' as says Maître Blaise." And beautiful it really is. Here Cameron produced a work which will stand to his credit as long as the memory of it lasts. The problem before Cameron was to build a terrace on the level of the second storey of the Palace, adjoining the Empress's apartments. On the terrace a garden was to be laid out, and so as to make the whole look solid and less detached a suitable architectural surrounding was necessary. The original plan, reproduced here, shows how Cameron solved this problem. The building at the top of the plan is the Palace. Right opposite it, across the garden, is the gallery, and on the right of the plan is the bathing-house. Later on, when Catherine through her advancing years was mostly wheeled in a Bath chair, Cameron built a long sloping descent in front of the gallery. The design here reproduced differs from the actual construction in that the last projections, with sphinxes, were not built.

"Cameron's Gallery," the only building in Russia which actually bears the name of its projector, became an object of particular pride with the Empress, and in its time achieved some considerable fame outside the Empire. "If you could only see," writes Catherine to Grimm in May 1780, "what a beautiful gallery and what beautiful suspended gardens I shall have close by my new apartments at Tsarskoie Sielo, I am sure you would agree that Cameron is the man." Well the Empress could have been satisfied, as the gallery is a wonderful production indeed. On coming out of the Palace it opens to the eye a perspective of light, airy columns, surrounding a long and narrow glass covered central room. The columns are spaced at distances nearly double those accepted by the Greeks, Romans, and the great masters of the Italian Renaissance, thus testifying to the freedom which Cameron allowed himself in following the classical canons. At the other end the gallery terminates with the stairs descending to the ground, which, seen from below, present a spectacle quite unique in its beauty. The stairs start between two gigantic projections decorated with the statues of Hercules and Flora, and leading to the ground floor of the building; thence by two magnificent sweeps they reach to the gallery. As to the ground floor, on which the gallery rests, it is treated as a plinth, in a manner reserved and even severe.

The other building in this charming scheme is the bathing-house, or "Bain Froid" as it was called in the French parlance so prevalent at that time. Its garden façade had in its centre an oval pavilion projecting half-way out of the wall and covered with a flat oval dome. There is yet



ENTRANCE FRONT OF BATH HOUSE.

much reminiscent of the epoch of the Baroque style in the plan and the garden façade of this beautiful building.

Much more Classic and even severe is the rear façade of the bathing-house. The ground floor adjoining the heavy arches of the terrace is treated as a plinth, similarly to that of the gallery. On this imposing basis the first floor is placed, with the wall made up in stucco and decorated with niches, sculpture, and relief medallions. At the present time the walls are still coloured in the tints used by Cameron, and the yellow tone of the surface, the white of the projecting parts, and the red Pompeian tone of the niches emphasise the beauty of the building. Of the interior apartments only the upper ones are well preserved. These are the "Agate Chambers," given this name owing to the walls of their side cabinet rooms being finished with agate and one of the rooms having fine agate columns. The central hall is not so pleasing, and seems rather overburdened with decoration.

The latest portion of the buildings, the descent from the suspended garden, is executed in the same severe style as the lower storeys of the gallery and the bathing-house. It rests on mighty arches, having colossal masks on the keystones, and with its roughly hewn blocks of stone appears cyclopic in its power.

The building of the bathing-house and the gallery took some years, and during the winter intervals Cameron was occupied with the work of reconstructing the apartments of the Empress in the Palace. The decoration of these apartments may be called one of the most exquisite creations of the refined eighteenth century.

Though Classic and reserved on the outside, in the inside Cameron is easily given to the playful and mincing spirit of the Baroque. "It is difficult to express in words," says M. Grabar, "the fascination produced by the Empress's apartments, on which Cameron bestowed all his refined taste. The photographs also give a very faint idea of this beauty, as they do not show the principal charm of the decoration—its wonderful colouring and rich materials. The exquisite small columns of the bed chamber are made of earthenware and glass. In decorating the interior walls Cameron particularly often resorted to coloured glass and porcelain. Here it is the glass medallions of a beautiful blue-tone, bordered with a light gold pattern, and fixed in the wall; there just some playful gold ornaments on the milk-like glass ground; or, again, china relief panels. Astonishing is also the stucco decoration in the dining-room, producing in reality an indescribable impression."

Along with this work Cameron was called by the

Empress to apply his talent in a different direction. This was just the period when Europe suddenly discovered the Chinese art, which, much altered and adapted to European ideas, rapidly came into fashion. It was then that William Chambers built his pagoda in Kew Gardens, and it was natural that the fashion should spread to Russia. Catherine was greatly taken with it, and one of her Russian architects, Neielov, after returning from England, where he had been commissioned to study architecture and the laying out of gardens, built her in this Chinese style several garden pavilions, and even an opera house. These erections could not satisfy Cameron, and his estimation of them he did not conceal from the Empress. As a result Catherine gave instructions to her favourite to build a complete Chinese village, designated to shelter distinguished guests and courtiers. Plans and designs of real Chinese houses were asked for from the Russian Mission in Peking, and during 1782-88 Cameron erected ten such houses. However, he did not finish the Chinese village, and even its principal part, the pagoda, eight storeys high, preserved as a model, was left unbuilt.

[We are indebted to Messrs. Grossman & Knebel, of Moscow, for permission to reproduce the illustrations of Cameron's work.—Ed.]

(To be continued.)

THE EVOLUTION OF GAS LIGHTING AND HEATING.

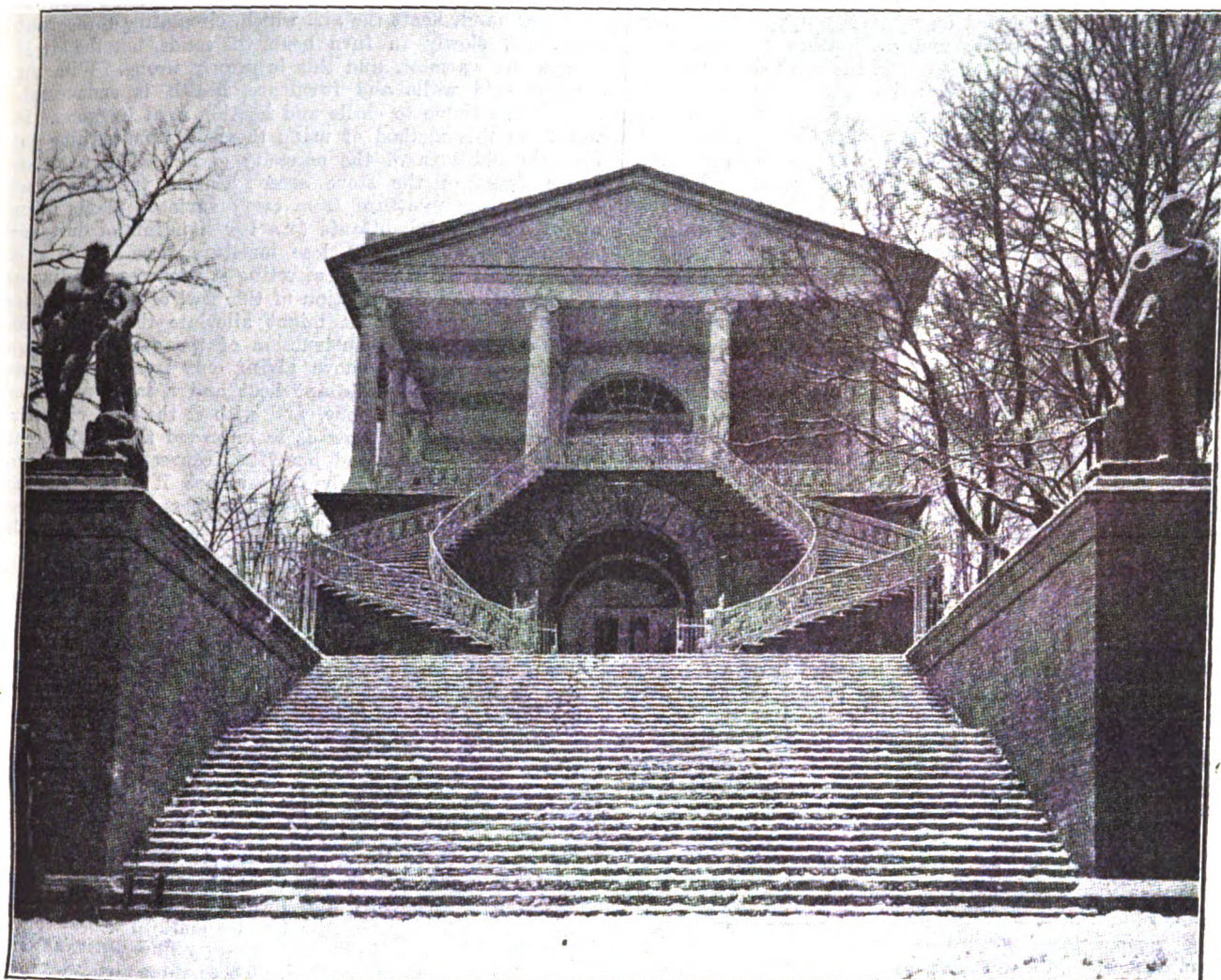
At the National Gas Exhibition, Shepherd's Bush, a series of three lectures was delivered by Professor Vivian B. Lewes, on October 2, 4, and 7. The opening lecture dealt with

The Reign of the Luminous Flame.

The first practical adaptation of coal-gas for lighting purposes having been made by Murdoch in the early years of the last century, said Professor Lewes, and its manufacture and distribution having been further perfected by Malam and Clegg—gas, as an illuminant, rapidly found its way into public favour.

The earliest burners used for its consumption consisted of jets, either single or clustered, as in the cock-spur and cock's-comb burners, which gave an illuminating value of a little over a candle per cubic foot of gas.

The flat-flame burner, however, soon was added to these, and slightly increased the light developed from gas, as drawing the gas out into a thin sheet of flame enabled a



APPROACH TO GALLERY TSARSKOIE SIELO.

more satisfactory combustion of its constituents to take place.

It was Sir Humphry Davy who first explained the causes that led to luminosity in a flame, and showed that solid particles were necessary to develop light, and that, if no solid particles were present in flame, it was non-luminous. The various theories as to luminosity which have been advanced since, have none of them altered to any serious extent Davy's historic work.

The light being due to the incandescence of solid matter, it is clear that the higher the temperature of the flame the brighter will be the light; and in the early fifties Sir Edward Frankland applied the principle in making an Argand burner in which the air supply to the flame was heated by passing round the chimney glass. Bowditch, soon after, made an almost identical burner—and these were the forerunners of the regenerative class of burners that played so important a part in overhead lighting in the late seventies and eighties.

Whilst these improvements were being introduced in the form of the burner, alterations had been taking place in the method of manufacturing the coal-gas. The fireclay retort had replaced the iron retorts first used, and higher temperatures were employed than had before been possible, which resulted in a larger yield of gas from the coal.

The flat-flame burner being the one most used in those days, a gas of fairly high illuminating power was necessary to obtain from it a decent amount of illumination, and this led to the enrichment of the gas, first by mixing a certain percentage of cannel with the bituminous coal in the retort, and later by the use of gasoline. Whilst in the beginning of the nineties, carburetted water-gas entered the lists, and proved itself such a valuable adjunct to coal-gas that, for twenty years, it was almost universally employed. But now the rising price of oil, and the new methods of carbonising, are killing its use, and the carburetted water-gas plants in many works stand almost idle.

LECTURE II.

The Victory of the Incandescent Mantle.

The last half of the nineteenth century will always be looked back to as the most important era in the history of gas lighting, as this period not only covers the invention of the Bunsen or atmospheric burner, which has been the factor that is making coal-gas the most important fuel in domestic heating and cooking, and renders the use of the incandescent mantle a possibility; but also the discovery of the incandescent mantle, which, in combination with the atmospheric burner, has given gas its pre-eminence for lighting.

Both these milestones in the history of gas owe their inception to those laboratories which, founded by Bunsen at Heidelberg, have made an indelible mark in the scientific history of the world. It was whilst these laboratories were being built and fitted that Sir Henry Roscoe, who was one of Bunsen's pupils, suggested that it might be possible to make a heating burner on the principle of an old experiment of Sir Humphry Davy's, in which a jet of unlighted coal-gas passing through air could be lighted above a piece of wire gauze held in the stream, and burnt with a non-luminous flame; and this suggestion Bunsen converted in a couple of days into the burner that bears his name.

If any surface cooler than the flame itself is put in a luminous flame, the cooling of the latter checks combustion and causes the deposition of the incandescent particles of carbon in the form of soot; mix the gas, however, with half the volume of air needed for its combustion before lighting it at a jet, and it burns with a non-luminous flame which contains no solid carbon and therefore cannot make soot or blacken surfaces held in it, and this principle forms the basis of the many forms of burner that we use for heat and light by means of the mantle.

These laboratories have during the last thirty years been famous for the researches made there on the class of minerals that we call "rare earths," and in 1884 Anser von Welsbach, whilst experimenting with some of these, found

that certain salts gave residues which glowed with remarkable brilliancy when heated on asbestos fibres in the flame of an atmospheric burner, and attempting to turn this property to commercial use, invented the method of making the incandescent mantle by weaving a cotton mantle, the shape of the flame it was to fit, but considerably larger, steeping it in a solution of nitrates of the metal he desired to form the oxide skeleton mantle and burning away the cotton. Under the influence of heat the nitrates became converted to oxides, at the same time supplying the oxygen to burn away the organic matter of the cotton, so that if salts of refractory oxides were used after burning, a skeleton model of the original fabric was left in heat-resisting oxides which could be suspended in the flame. In the early days, the fragile nature and variable character of the mantles so made threatened commercial failure, but in 1893 the best mixture of metallic oxides to give strength and durability with a maximum of light from the mantle was arrived at, and the processes of manufacture so beautifully illustrated in sections 24 and 26 of the Exhibition, were adopted, so giving the all-conquering mantle which has increased the light obtainable from the one candle a foot, given by the original gas burners a hundred years ago, to close upon 60 candles a foot when the gas is used under pressure.

In 1900 the idea of the inverted incandescent mantle burner arose, and the decorative effects that could be obtained by its use, and the fact that it gave a shadowless illumination of the working surface and its maximum effect at the working angle, have installed it as a universal favourite, whilst its hygienic action on the air of enclosed spaces has removed the last prejudice against its use. As an aid to ventilation it is superior to electric light, for whereas the latter leaves the air stagnant, gas causes movement and the deleterious constituents rise through the ceiling.

LECTURE III.

Gas as Fuel, Heat Without Smoke.

When the atmospheric burner had been perfected the value of gas as a source of heat at once became apparent, and various forms of heating apparatus soon made their appearance on the market; but in the early attempts to establish coal-gas as a domestic fuel supply, the true principles which should be rigidly observed in its use for this purpose had not been grasped, and as a consequence the first applications were none too successful, and, moreover, had serious drawbacks which unfortunately created a prejudice against the use of gas for domestic heating that has taken a quarter of a century to overcome.

The first mistake made was to suppose that because the flame of the burner was non-luminous and when burning freely gave off no deleterious products, it would do the same under all conditions. We now know that any substance cooler than the flame which is being heated in it practically extinguishes the flame a minute distance from its surface and allows products of incomplete combustion to escape into the air, so giving a tainted smell and producing headache and bodily discomfort. The early form of water heater was one of the worst offenders in this respect; it generally consisted of a coil of metal pipe through which the water to be heated was kept flowing whilst the flame from an atmospheric burner played upon its exterior; the checked combustion under these conditions evolved carbon monoxide in such abundance that many fatal accidents happened in badly ventilated bath rooms. Now in the modern water-heater the flame never is in contact with the water tubes, combustion is complete, and although the products are perfectly harmless, ventilation is provided which carries off all products.

In the domestic stove, when first introduced, it was found that if the flame was first allowed to heat various forms of asbestos or fireclay artificial fuel, radiant heat was produced, and that if all products were drawn off into the chimney by means of a flue the largest proportion of heat went up the chimney, so that the consumption of gas was large, and to overcome this trouble stoves were constructed which either discharged the products into the room or parted with a large proportion of their heat to air chambers or metal flues, which in turn heated the air by convection, and so obtained a high duty.

There is a wide difference between heating a room by these two methods. When a room is heated by radiant heat, the solids in the room are warmed so that the body receives no chill, but the air remains cool for breathing; it is the only hygienic method and is the natural one by

which the earth is heated by the sun. Convected heat, on the other hand, heats the air, which, circulating throughout the room, slowly in turn heats the solids, but the air is always the warmest, and this is utterly wrong. With hot air and cold walls and furniture, health is endangered, the body is liable to chills and heating is at its worst. It was from this method of using the heat from burning gas that the old idea of the necessity of a bowl of water on or in front of the stove arose; heating the air causes it to take up moisture from every surface; plants droop and the living inhabitants ("a few handfuls of dust and six buckets of water") lose moisture from the skin so rapidly that the strain of secreting it produces a feeling of discomfort, and the function of the bowl of water was that by rapid evaporation it might alleviate this. The principle of the correct construction of the gas stove is now understood; the old stove giving only from 25 to 33 per cent. of its heat as radiant heat and a large proportion of convected heat, is gone, and with it the bowl of water; now the modern gas stove is so improved that 50 per cent. or more of radiant and but little convected heat is produced, whilst the steady temperature it gives, the fact that it needs no stoking, its cleanliness and convenience, and above all its smokelessness, make the gas stove the ideal source of domestic warmth.

The smoke curse that in the last half of the nineteenth century fell upon our cities, and by fog, filth and cutting down the hours of sunshine, injured us to the extent of many millions in money and untold misery in health, is slowly being conquered as gas as a fuel steadily advances, and we find that not only in the home, but for power and the factory, coal-gas is our ideal fuel as well as illuminant.

A CURSE OF CIVILISATION.*

By SIR WILLIAM RICHMOND, K.C.B., R.A.

THERE are three things necessary to the entire well-being of man—light, health and beauty. Without the first we deteriorate physically and mentally; the second is a condition implied out of the first; the third is necessary to the highest which we have in us—it refines us, it exalts us, and it makes us praise God. These three necessities to the higher well-being of mankind are, if not denied, injured in great cities where manufacture comes first, while light, health and beauty come a long way afterwards; and that it is so does not speak well for the intelligence of the race which elects to command our great industrial centres.

Perhaps the greatest evil, outside what is positively wicked, that modern civilisation has created is coal smoke.

I say "created," which is true, but I ought to say much more, encouraged! The evil has been due to carelessness in one respect, apathy in another, and I am afraid if I tell the truth I must say selfishness in yet another. For do the manufacturers live under the smoke which their shafts emit? Surely one has to say no! They take good care to secure beautiful seats away from the pest which they help to create, and they leave the men, women and children who are their earners, and who really are the prime payers for their country estates, to dwindle in a wretched atmosphere, to find no pleasure in life save from the most artificial of its aspects—drink and gambling—to become degraded in physique and in moral tone, that they, the owners, may luxuriate in their country homes. That is one point.

There are not a few people who will contradict me anyhow, such as are financially and intimately connected with manufacture which induces, though it need not of necessity compel, the production of smoke. If it is true that light means life, if it is true that plants will not thrive without the sun's rays, that even grass dwindles, trees die, flowers will not flourish—and that is true—are we human beings less sensitive than lower organisms?

Rather are we not more sensitive than they are? For as far as science has as yet taught us, and something which speaks to us with closer language than science can do—our instinctive reason—tells us that, plus the care of our bodies, we have something else to care for—I mean that something which has been given us by an Almighty power, a thing which old-fashioned people call the soul, the soul which has been esteemed to be higher than the body because it is indestructible—that belief is as ancient as man's intelligence, and it is a belief to which savage races cling,

* A Paper read at the conference on "Coal Smoke Abatement" on October 9 at the National Gas Congress, Shepherd's Bush.



GARDEN FRONT OF BATH HOUSE, TSARSKOIE SIELO.

and which has led men to do the noblest acts of self-denial and achieve wondrous great deeds.

The thing, the soul, they say animals do not possess, which statement has got to be proved. If it be true, we then are granted the highest place in the scheme of creation, in that we are born with the germs in us of immortality, in whatever station and of whatever rank.

Well, at the same time, this part of us which is an abstract quality is allied for the time being to another part which is concrete and very real—the body. These two parts of us—body and soul—act and react; one cannot be injured without confusion to the other, a part cannot be injured without the whole suffering.

Now it is accepted, I take it, by all philosophers that surroundings and environment modify if they do not create character! Happiness is a relative term; but, granted it is relative, civilisation is bound to take it into account and see that the race is not injured permanently by any action, either on the part of individuals or the State, which causes deterioration of the health of the body. For deterioration of the body means deterioration of the nervous system, hence less power of work and less good work, and, above all, the production of a progeny which, instead of showing signs of a rise in intelligence, in physical strength and in morale, will get nearer and nearer to the animal, which means universal unhappiness.

The dwellers in great smoke-laden cities *do* deteriorate, and markedly. They deteriorate as workers, as intelligent beings, and belonging as they do to an ever-increasing section of the country's population, it is a serious thing for the country that those who should be physically at their best are only too often physically at their worst.

Put plants into a dark cellar and they lose all colour, they cannot thrive; they may live, but they live only to degenerate. Then breed from these stunted, half-nourished remnants of strength and beauty, and what is the result? A weak progeny from an already weakened seed and a degeneration of healthy sap! Put human beings into the

same condition and they do more than degenerate, they die or become insane.

Now a smoke-laden city is a kind of modified black cellar. It is true that an anæmic sort of light feebly wanders through deep strata of unconsumed material, which weighed would prove to be thousands of tons of unburnt coal. Suspended only for a time in the air, this mass finally falls, bringing with it sulphuric acid, one of the worst poisons, and a fine dust which chokes the pores of leaves which it generally kills, for they shrivel up and become like black powder. The same poisonous material enters into every crevice. Places which appear to be hermetically sealed are not immune from its invasion. Every material suffers more or less from the destructive agencies which are contained in this coal-smoke; they will destroy metal, rot linen, injure marble, corrode stone and play havoc with the surface of priceless pictures, embroideries and other works of art which happy and contented minds have delighted to make.

This is a pretty large condemnation, but there is one even as serious, the effect which smoke-laden fogs produce upon the delicate structure of the lungs, the linings of the throat and the whole mucous membrane. During a week of fog the death rate rises in alarming proportions. A common cold may easily develop into pneumonia, heart failure due to the lack of oxygen will ensue, and death come in twenty-four hours. Where the fogs do not kill, they enfeeble. One has only to look at the faces of people in the street after a period of smoke-fog to be assured of its evil effect. The skin is colourless, the eyes are dull, the lips are white, the whole bearing of people is drowsy and lifeless; they are suffering from want of oxygen and have been poisoned by sulphuric acid. The most eminent doctors have dealt with the question and substantiate the deadly effect of smoke fogs upon health.

The evils I have mentioned and which arise from the effects of smoke are perfectly well known now, so there is no excuse whatever either for sluggish legislation or for

inactivity to cope with so serious a nuisance on the part of borough and county councillors. It is, of course, quite true that household chimneys give off a great deal of smoke, but at present as the law stands they cannot be dealt with. Possibly the use of gas fires and stoves for heating and cooking purposes within a measure lessens this evil. But legislation can deal with factories, and has done so in ineffective manner.

Now there can be no doubt that London is less often overwhelmed by black fogs than formerly. Since the Coal Smoke Abatement Society set seriously to work there is improvement, but unfortunately not as much as should have taken place. Below London Bridge and onwards to the Nore, there is a manufacturing district, and this is growing, where the law is openly set at defiance, the Borough Councils refuse to act, and the Local Government Board refuses to force them to do so.

The County Council has no power over West Ham and that district from whence, when an east wind blows, comes much of the smoke to the west; it travels up the river and is fed by other smoke on its way, its evil effects are felt even as far as Reading, where fresh smoke joins again, and Oxford enjoys the London smoke joined with what it creates itself.

Sixty miles does London smoke extend, and that is an under, not an over, statement.

I would put a tax on smoke. I would say to manufacturers, "If you tell me that smoke is necessary for your business—which statement we all know now is an inaccurate one, smoke being a serious and very expensive nuisance—you must pay for its presence." If factory owners were taxed a pound a day until all smoke had disappeared from their shafts, I would not mind making a big bet that in a year's time there would be no more smoke from factories in England. In the first place, when men find that they have to pay a tax of £300 a year, which is a large rent, perhaps they might do so for one year, but I question if they would do it for two years. It is needless to say that business men, when they are forced by circumstances, find means to do what they say, under other circumstances, is impossible. If they are told by a strong Government, not one party which is a weak Government, that what they make will be taxed, and to a point which will interfere with profit, depend upon it they will soon find means to avoid the tax by a diminution of the thing taxed; which is to say that they will immediately either apply remedies against making smoke already in the market, or they will invent new ones. Certain it is that when coal gives out, which we are told is an event likely to happen within a period not long hence, man's ingenuity will discover fresh means of heating, and very soon coal will be a forgotten commodity and a forgotten nuisance. In the meantime, whilst we have coal with us, we have also the means invented and upon the market which will prevent the nuisance of coal-smoke; why then delay to make the use of such means obligatory and the neglect of their use punishable? We all know now that it is not really a question of black smoke at all; it must be a question of *no* smoke. When the word "black" is gone from the Public Health Act, when we have "smoke" not "black smoke," which means all smoke, because all smoke is deleterious, not only black smoke (and, by the way, all smoke is black) the evil will be overcome. A few good healthy fines—I mean such as will materially touch the interest of the manufacturer—and the thing will be accomplished. *We shall have no more smoke from factories.*

Now all smoke is *unconsumed carbon*; coal will be getting scarce; is it to the interest of those who use coal to waste it, aye, waste it by thousands of tons? One has only to appeal to the most commonplace business capacity to obtain the answer "No"! Very well then, why is it done? A strong Government could stop it to-morrow. And for general benefit there can be no doubt as to the desirability of action in place of talk. Royal Commissions may sit every year, deliberate and talk platitudes, examine witnesses and record proceedings in that dull thing called a Blue Book, but what is the outcome? Nothing but talk. Ministers seem to be under a delusion that a Royal Commission is a sort of panacea or reassuring measure; the public is for the time being satisfied, a matter has been ventilated thereby and is presently consigned to the pigeon-hole. Agitation ceases, only to begin again when it has been discovered that the outcome of a Royal Commission has been *nil*, that the *status quo* has been maintained, fresh expense is incurred, and a fresh Commission sits, and so on *ad infinitum*.

It being so that the various Governments, Tory or Radical, are fast asleep upon many matters of first-rate importance—compulsory service, health in our great cities, light and air and cleanliness in our great cities—people who are in earnest must take matters into their own hands and make it impossible for Governments to go on existing at all if they do not act for and with the most intelligent and far-sighted of the public.

Vested interests are difficult to touch, say some; yes, but not so difficult as may be imagined or as some think. Government can touch vested interests to the quick when they want money, sometimes for excellent, sometimes for the reverse of praiseworthy, schemes. Now, the abolition of all smoke from all factories will cost the Government nothing; it may for the moment cost companies and individuals something; but that cost will soon be covered by the saving of coal by consuming all of it instead of allowing a considerable proportion of it to be wasted. Dirt is a very costly commodity, very costly; the penalty England pays for her "smoke" runs into tens of thousands per annum, and the irritating fact is that the condition of things which causes that want of money is *remediable*. Absolute consumption of coal is *possible*, it is not an Utopian idea that it *may be so*, it is *so*. Very well then, in the cause of all that is sensible, economical, just and wise, *coal smoke from factories should be made penal*.

Penal when it proceeds from Government works, because Government is wasting public money; penal when it proceeds from manufacturers' works of any sort or kind, including electric stations.

The words in the clause in the Public Health Act, before mentioned should be changed from "black smoke" to "all smoke." Fines for not complying with the law should be cumulative, to begin at £10; each subsequent offence to be paid for by double the fine—£10 to £20, £20 to £40, £40 to £80, £80 to £160. I doubt very much if any manufacturer would care to double the fine of £160. £320 would arrest even the most speculative offender.

A Conference may be quite as inadequate a means for improvement as a Royal Commission. Very wise things may be said, patriotic platitudes may be cheered to the echo, vested interests may be improved, but things from the big *Public Interest* point of view may remain exactly the same after a Conference as after a Royal Commission. If this Conference means business, and is not to result only in talk, it will, after threshing out ways and means to abolish the scourge of coal smoke, put the ideas together in short decisive form, and forward a statement of them to the Government; to the L.C.C., and to all Borough Councils and County Councils.

If this were done the subject would become at once of wide-spread interest, and even the Government of whatever party in power might deem it politic, perhaps for the sake of votes, gaining or losing them, to make a serious question of a very serious question. For, with the growth of towns—an evil which seems to be at present inevitable—the abominable demon of coal-smoke will grow, and when it has grown to unmanageable proportions it will be far more difficult to check it than now. Of course, with the growth of cities, more manufacturers will be necessary, or they may seem to be so to a certain and preponderating class of mind, and with this addition legislation must be prepared to deal, and to deal in no half-hearted a manner if from the end to end of England presently we are not to be submitted to a veiled sunlight, an anæmic population, destroyed agriculture, injured trades (such as fruit and vegetable-growing), and hence be still less in a position to feed ourselves upon our own product than we are now; and surely that would be lamentable!

People do not as a rule realise in the very least the damage that smoke does to all plant life, including fruit and vegetable. Sulphuric acid will destroy all blossoms, it will hinder the strength in stone fruit to mature the stone, it destroys the breathing apparatus of leaves which it suffocates. Coal-smoke is therefore an evil common to town products and country. It destroys cotton, silk and metals as it injures the growth of flowers and fruit. It injures health, it indirectly saps energy by poisoning the blood and darkening the life-giving rays from the sun.

Coal-smoke, then, taken altogether is the greatest curse which follows upon what is called civilisation. I question if now there are many people who will deny that fact since it has been drummed into the most obtuse and obstinate minds. Coal-smoke is therefore a thing to be rid of, and if necessary for that riddance people who make it must suffer punishment, the best for them being that one which



INTERIOR OF GALLERY, TSARSKOIE SIELO.

they will most feel—*heavy fines*. If an evil is pronounced an evil on all hands, Governments are to be and should be severely censured which do not take care of the real and lasting necessities of a nation upon which its prosperity depends—a people full of life, of go, of energy, gotten we all know quite as much by good air as by good food; in fact, probably good air is more essential than good food. It is an instrument which is quite useless if held by a degenerate people; a degenerate people can be consequent upon absence of light, absence of direct solar rays. It is time that this fact be driven home, and when once it is realised by all classes, from the rich to the poor, we shall have no more poisonous sulphuric acid making havoc with the health of human beings and with plant life, and which renders life less than half as happy and in the highest sense profitable as it might be.

LONDON MASTER DECORATORS' RULES.

THE following is the purport of the Working Rules for London Painters as amended and awarded by the Arbitrator, Benjamin Francis Williams, Esq., K.C. :—

Clause 1.—Definition.—Throughout these rules “Employer” means a member of the London Master Decorators’ Association, and “Workman” means a member of the National Amalgamated Society of Operative House and Ship Painters, on whose behalf these rules have been signed, and no exception shall be taken to the employment or non-employment of a man on the ground that he is or is not a member of said Society. Neither shall any exception be taken to the employment or non-employment of a man in any other trade on the ground that he is or is not a member of a Trade Society.

Clause 2.—System of Qualification.—Section A.—Decorators and painters to consist of :—

Sub-Sec. 1.—Any workman who, in the opinion of at least three employers, is entitled to be described as such,

or of one employer if he has employed him for not less than three years.

Sub-Sec. 2.—Alternatively a workman may apply to a board to be hereafter constituted.

Section B.—Improvers to consist of: Workmen who, being over the age of twenty years, shall serve three years in the trade. On completion of that period they shall be entitled to rank as decorators or painters, provided they qualify under Sec. A, Sub-Sec. 1 or 2.

Rate of pay to be a sum not exceeding 7½d. per hour.

N.B.—Painters’ labourers who have served five years as such may become improvers.

Section C.—Apprentices.—Apprentices having served their time may become improvers or may qualify for decorators or painters as provided in Sub-Sec. 1 and 2 of Sec. A.

Note.—The Arbitrator recommends that a joint board of masters and men meet for the purpose of considering the matters involved in the Masters’ Draft Rules—viz. qualifications of workmen, improvers, and apprentices, and their decision to become part of these rules.

Clause 3.—Working Hours.—The working hours in summer shall be fifty hours per week for thirty-five weeks. During seventeen weeks of winter, commencing on the last Monday in October, the working hours shall be forty-four hours per week.

The hours of labour on jobs to be as follows :—

Summer for thirty-five weeks.—The first five days of each week, 6.30 A.M. to 8 A.M., 8.30 A.M. to 12 noon, 1 P.M. to leaving-off time, subject to overtime as provided in Clause 4. Saturdays, 6.30 A.M. to 8 A.M., 8.30 to leaving-off time, subject to Clause 4.

Winter for seventeen weeks.—The first five days of each week, 8 A.M. to 12 noon, and 12.30 to leaving-off time, subject to overtime as provided in Clause 4. Saturdays, 8 A.M. to leaving-off time, subject to Clause 4.

During the last five weeks of winter one hour for dinner to be allowed.

The hours of labour in workshop to be the same as on jobs, but with one hour for dinner in winter.

N.B.—Under exceptional circumstances which preclude the agreed working hour being adhered to on any contract, the employer shall be at liberty to vary the working hours without payment of overtime rates, provided that the total regulation hours for the day be not exceeded.

Standard rate of wages after Monday, September 15, shall be 9½d. and 10d. per hour.

Clause 4.—Overtime.—Overtime, when worked at the request of the employer, shall be paid at the following rates, namely: From 5 P.M. to 8 P.M., time and a quarter; from 8 P.M. to 10 P.M., time and a half; after 10 P.M., double time; Saturday 12 noon to 4 P.M. time and a half, after 4 P.M. double time; Sunday and Christmas Day, double time. When working until 7 P.M., half an hour for tea to be allowed and paid for.

Workmen engaged on a night gang shall be paid 2d. per hour above the ordinary rate for a period of nine hours, after which overtime at time and a quarter will be payable. Meal times during the night to be one hour and a half. From Saturday midnight to Sunday midnight, double time. Meal time to be deducted.

Clause 5.—Notice.—One hour's notice to be given or one hour's time to be paid on either side on determining an engagement. All wages due shall be paid at the expiration of such notice, or walking time if sent to the yard.

In the event of more than 10 per cent. of the workmen of the trade employed at the job giving notice to leave during any one day (except Saturday), they shall not be entitled to receive their money until noon on the following day.

Clause 6.—Expenses.—Workmen who are sent from the shop or job to any point within the London District shall be allowed travelling expenses and time occupied in travelling one journey each way for the job. If the distance sent be over six miles in a direct line, then lodging money at the rate of 6d. per day, including Sunday, to be paid in addition. If sent outside the London District they shall receive 6d. per working day in addition to lodging money and travelling expenses and time occupied in travelling one journey each way for the job. Time worked on country jobs to be two hours in excess of London time (per day).

Clause 7.—Payment of Wages.—Payment of wages shall commence at noon or as soon after as practicable on Saturday, and be paid on the job; but if otherwise arranged walking time at the rate of three miles per hour shall be allowed to get to the pay-table at twelve noon. Night gangs to be paid at 6 A.M. on Saturday.

Clause 8.—Mess Room, &c.—Employers shall provide where practicable and reasonable the following conveniences: A suitable place for the workmen to have their meals in on the works, with a labourer to assist preparing them. Facilities shall be provided on all jobs for workmen to wash their hands, and five minutes to be allowed before meal-times and leaving-off time for the purpose.

Clause 9.—Back Time.—Wages earned after 5 P.M. on Friday and time worked Saturday shall be kept in hand as back time.

Clause 10.—London District.—The term "London District" shall mean a twelve-mile radius from Charing Cross.

Clause 11.—Smoking.—No smoking to be allowed on jobs, workshop, or in mess-room.

Clause 12.—Conciliation.—(a) For the adjustment of all disputes, and to avoid stoppage of work, it is agreed that upon a difference arising between an employer or upon the works of an employer and any of his workmen from any cause whatever, notice shall be given by the Association or Society of the complaining party to the Association or party representing the other side, and the subject matter of dispute shall thereupon be referred to the Board of Conciliation, which shall be summoned within four days, and, if practicable, shall give its decision within the next three working days, proceeding in the following manner:—

(b) For all purposes of the foregoing Rules, the Board of Conciliation shall consist of three members nominated by the employers and three by the workmen. Each party shall send to the other within one week from the date of signing these Rules and within one week from January 1 in each year the names of six persons, from whom three shall be selected to act as their representatives on the Board of Conciliation for the current year ending December 31, and in the event of the death or resignation of any member either party shall appoint another member within one week's notice

being given thereof. The number of representatives of the employers and of the workmen on the Board of Conciliation shall always be equal, and shall be so maintained during the sitting.

(c) The Board of Conciliation so constituted, if unable to agree, shall make application to the Board of Trade under the "Conciliation Act, 1896," or apply for the appointment of a person to act as Conciliator.

The Board of Conciliation shall have power to decide all questions arising between the employers and the workmen, including any questions between one trade and another as regards demarcation of labour or other matters, provided that for the decision of any question involving claims or rights of other sections of the building trades a Joint Conciliation Board shall be constituted of the three representatives nominated by each trade involved and by a similar number of representatives of the employers, so that members on the Joint Conciliation Board may be specially represented on such Board, and so that the numbers of representatives of the employers and of the workmen on such Joint Conciliation Board shall be equal and be so maintained during the sitting.

(d) A Joint Conciliation Board shall have the like powers as a Conciliation Board and be regulated in the same manner.

(e) The Conciliation Board or a Joint Conciliation Board shall have power to make such rules and regulations for the transaction of business as they may approve.

(f) In the event of an application being made to the Board of Trade or a person being appointed as Conciliator, the decision of such person or the Conciliation Board shall be final and binding on both parties.

Clause 13.—Termination or Alteration of Rules.—Any or all of the foregoing Rules may be terminated or altered on six months' notice being given by either side.

Clause 14.—The decorating trade shall not be affected by any action of ship painters.

LONDON ASSOCIATION OF MASTER STONE-MASONS.

A MEETING of the above Association was held on Tuesday evening, September 30, at the Cannon Street Hotel, E.C., for the purpose of hearing a lantern lecture by Mr. Alan E. Munby, M.A., F.R.I.B.A., entitled "Geological and Microscopic Structure of Building Stones."

Mr. T. Sturge Cotterell, J.P., president, in briefly introducing Mr. Munby, said the Association was that evening inaugurating a series of lectures which were to be delivered before the members. England was specially rich in building stones. They as master stone-masons were rather inclined to look upon the stones from a business aspect rather as opposed to a microscopic aspect. Mr. Munby would therefore present to them a new view of building stone in helping them to realise its wonderful formation.

Mr. Munby commenced by leading his audience right back to the beginning or to the cosmic state of the world, before, in fact, it was in a solid state. To explain the formation of stones from a geological standpoint it was necessary to recall that the earth was once a nebula. That nebula began to cool and its surface to harden. As that cooling process continued the water collected in the hollows. Evaporation necessarily ensued, and so a constant cycle of operations was commenced, with the result that the earth was and is constantly washed down to the settling grounds, such as the lakes and seas. In fact, a process of erosion was set up through the action of wind, sea, and rain. That has continued ever since. It is calculated that the Mississippi brings down enough sediment in a week to raise a square mile of land five feet high. The land surfaces of the earth are, indeed, wearing very rapidly. In about five million years the whole of the present earth will be under the sea—of course, it would all come up elsewhere. The amount of compression necessary to convert such deposits of mud and sand into rock or stone, assisted by the earth's heat and other agencies, was not at all an immoderate one.

Stones were also formed in other ways. The oolites, which include Bath and Portland stone, were the result of chemical precipitation. It is supposed that they were formed in shallow water which contained bodies in solution, just as chalk water furs the kettle in which it is boiled. The granites might possibly be the original crust of the earth which had not settled in layers, but had solidified from a molten condition.

Mr. Munby divided the building stones of this country

tives of the
Conciliation
ined during

. if unable
Trade under
ppointment

o decide all
e workmen.
another as
s, provided
claims or
Joint Con-
representa-
a similar
at members
ally repre-
f represen-
on such
maintained

the like
ed in the

nciliation
gulations
ove.

le to the
nciliator.
ard shall

ex.—Any
altered

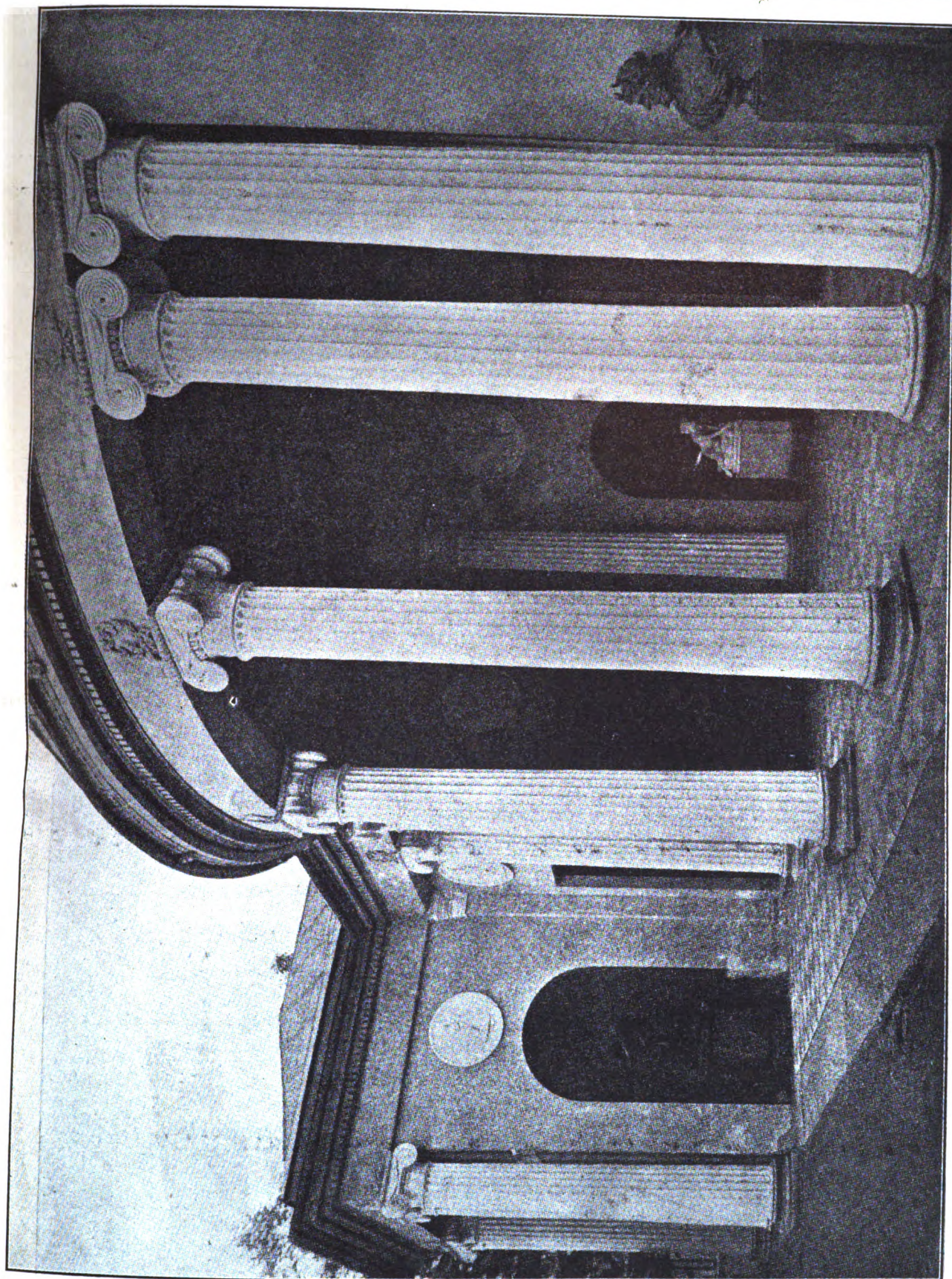
ected by

ONE-

esday
for
E.
and

tro-
ing
red
ing
to
op-
ore
em

ht
d.
he
as
at
at



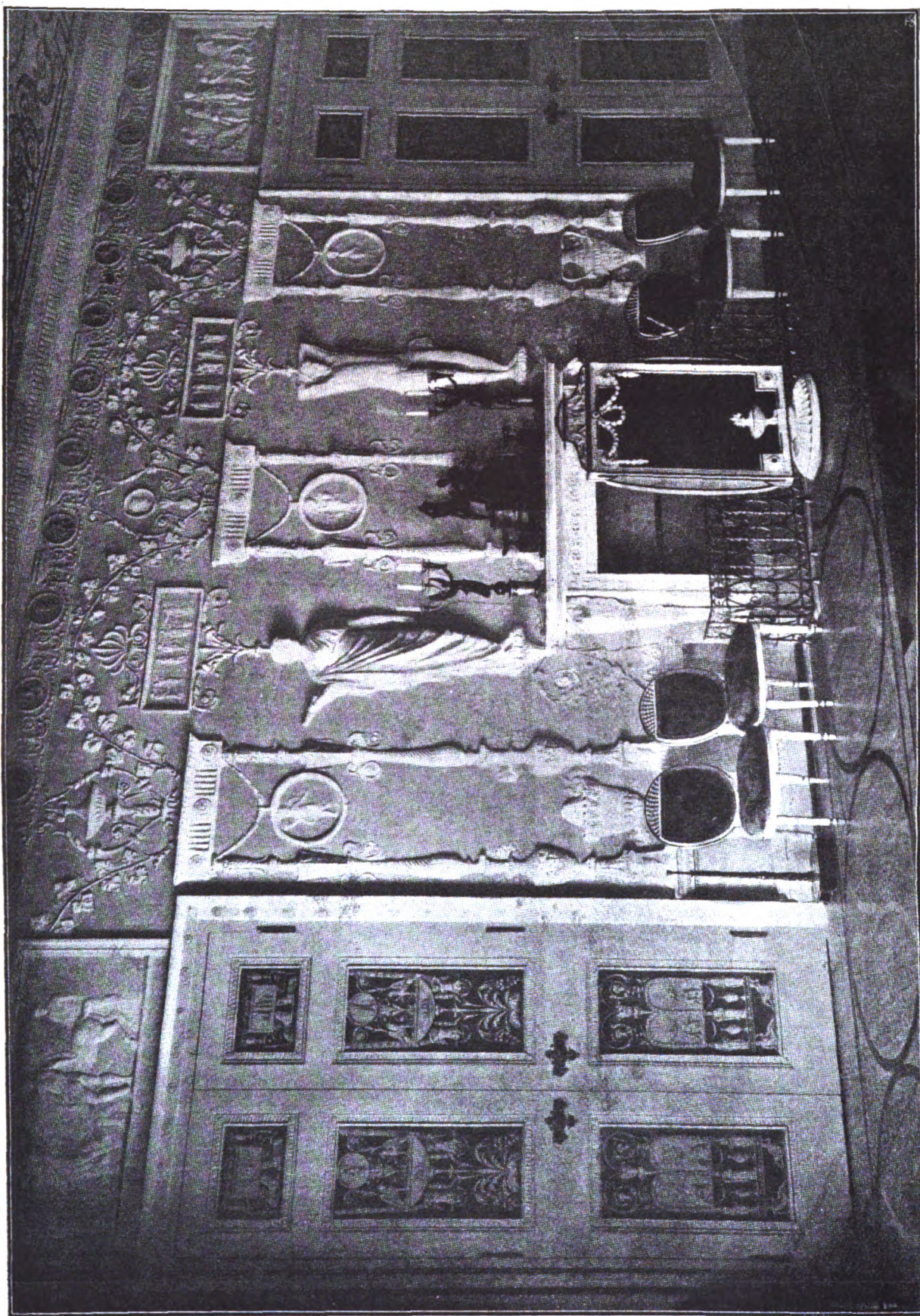
PORTICO OF BATH HOUSE, TSARSKOIE SIELO.

into two big groups. First came the granites or igneous rocks (so-called because they are formed through the instrumentality of fire). Next came the sedimentary or stratified rocks, which are mechanically or organically formed of the remains of older material or by chemical precipitation. These groups can be further sub-divided.

Granites contain three main constituents—viz., quartz for hardness, felspar for colour, and mica in very much smaller quantities. The general structure was always crystalline. A lot of rocks are imported of the granite class which are not regular granites. One of these is syenite, which does not contain quartz; and an instance of a stone of this class was given in the Labradorite, often called in the trade “public-housite.” Turning to sedimentary stone, it

was pointed out that one of the chief points of importance was the character of the material cementing the grains which compose the bulk of the rock. Broadly speaking, that cement was very much more important than the particles themselves. The lecturer then proceeded to show a series of lantern slides illustrating the microscopic structure of most of the best known building limestones, and after some further preliminary remarks showed a similar series dealing with the sandstones.

Most of the audience probably laughed at tests on stone. The only test brought before an architect was the crushing test, which certainly was not a very valuable one, because any stone which had a crushing strength so low as to fail would fall to pieces. There were not in this country any



DINING-ROOM IN TSARSKOYE SELO PALACE.

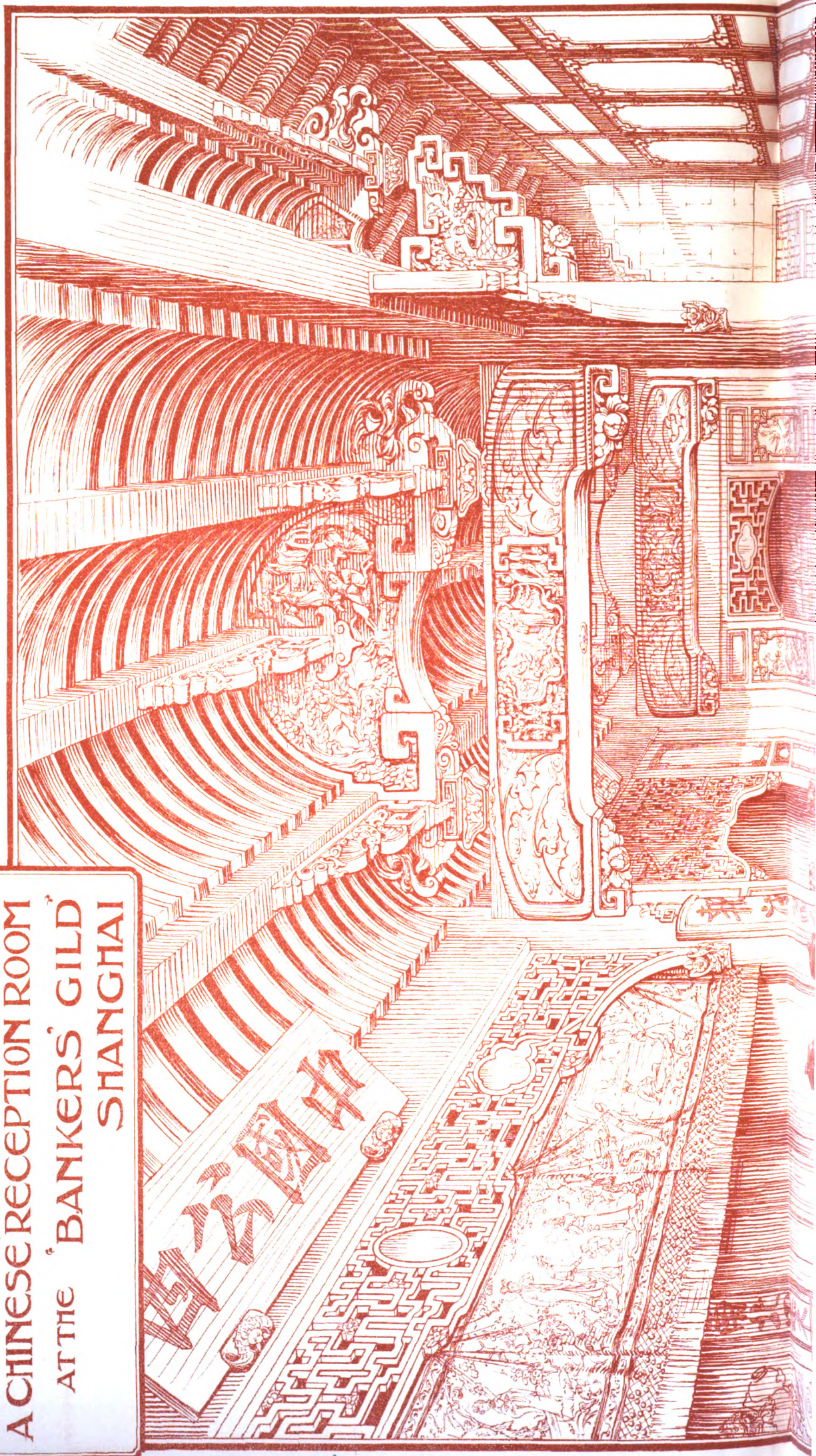
complete series of tests on stones. In the United States there was a bureau for the purpose, and if a man had any difficulty about a stone he can turn up particulars of it and draw his own conclusions. At the Geological Museum in Jermyn Street, however, a great deal of work was being done. But what was required was a special staff of Government experts. Architects might then be able to specify certain fair tests. Turning to the subject of decay, Mr. Munby said this was caused by the action of acids. The atmosphere of a great many English towns was, however, alkaline. That fact opened up an interesting field of investigation. Finally, the material used for jointing stone was shortly

referred to. Mr. Munby pointed out that there was also a big field for investigation in the action of cement on stone. Professor Van der Kloes, of Delft, is conducting work which seems to show that many ills of stone are due to the use of Portland cement in the mortar. The subject of the material for bedding stone was, in Mr. Munby's opinion, as important as that of the materials themselves.

Mr. T. Sturge Cotterell, in proposing the vote of thanks, said that so far as crushing tests were concerned the only possible resort of those dealing in stone was to place themselves in the hands of firms like Kirkaldy. The question of the chemical analysis of stone was quite different, and to

The Architect, Oct. 10th 1913.

A CHINESE 'RECEPTION' ROOM
AT THE 'BANKERS' GILD'
SHANGHAI



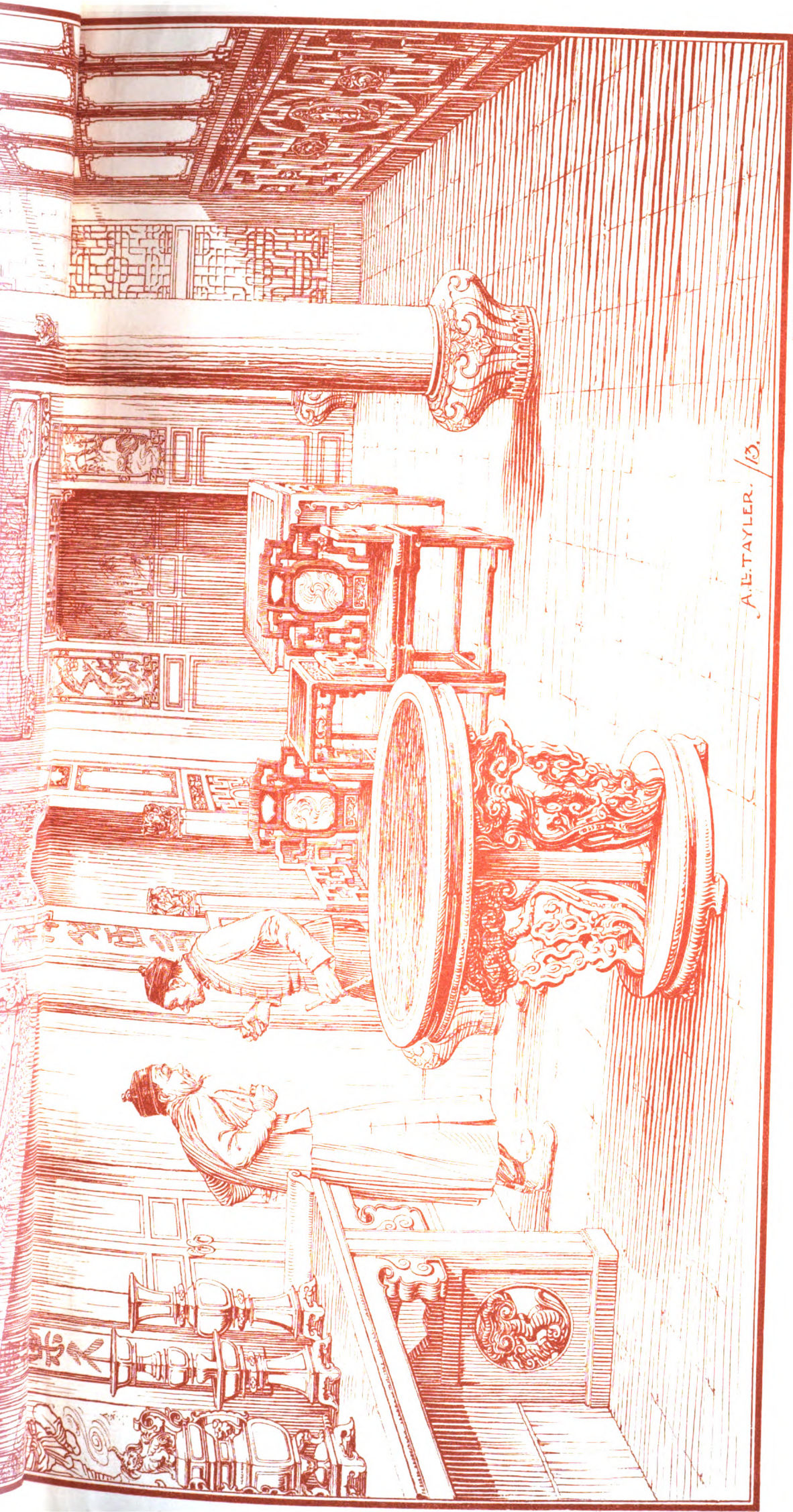
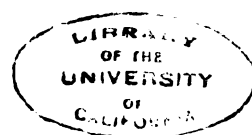


PHOTO LITHO. SHAGLE & CO. LONDON 49 & 70 DEAN STREET, SOHO, W.

FROM A DRAWING BY MR. A. LLEWELLYN TAYLER.

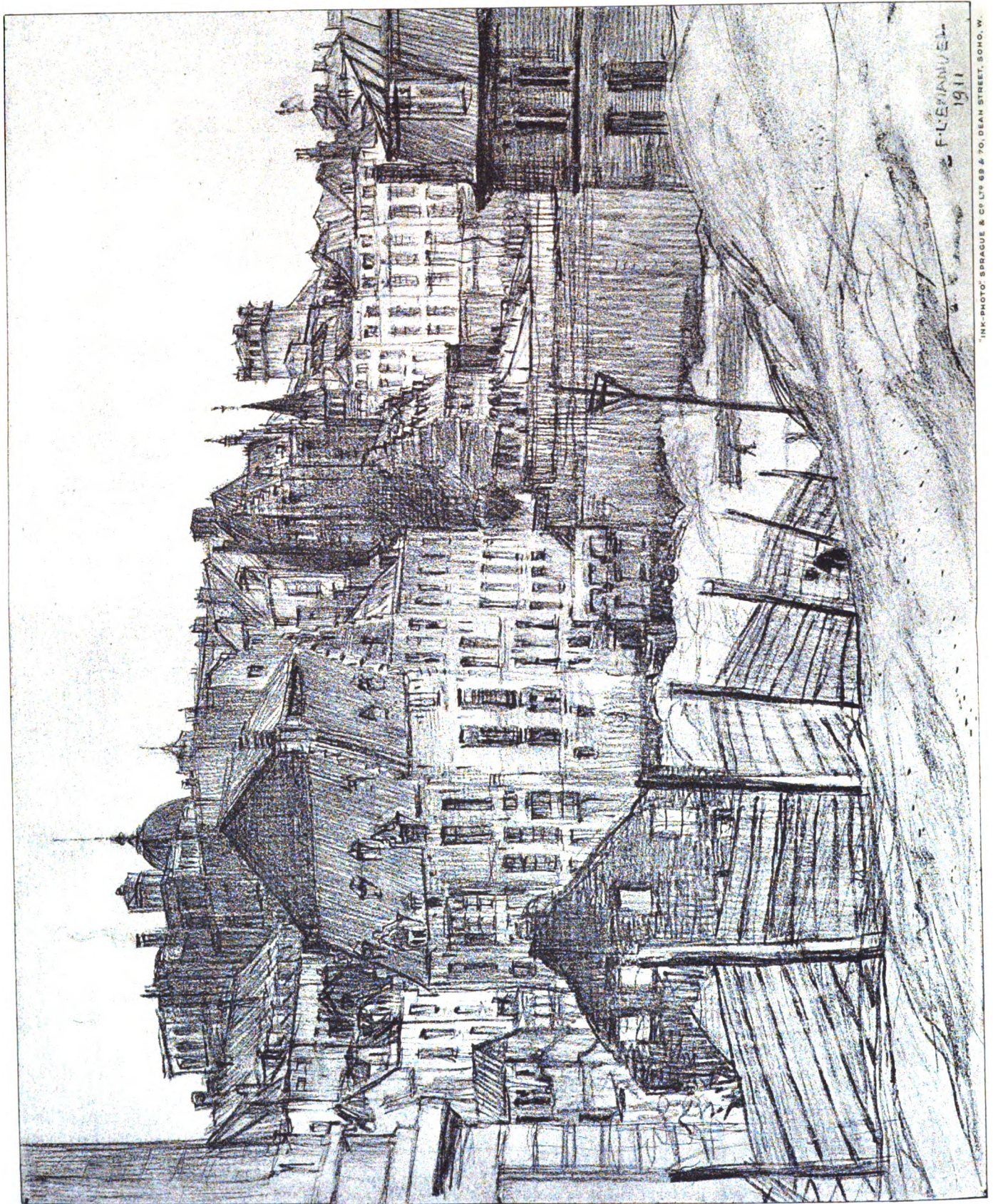




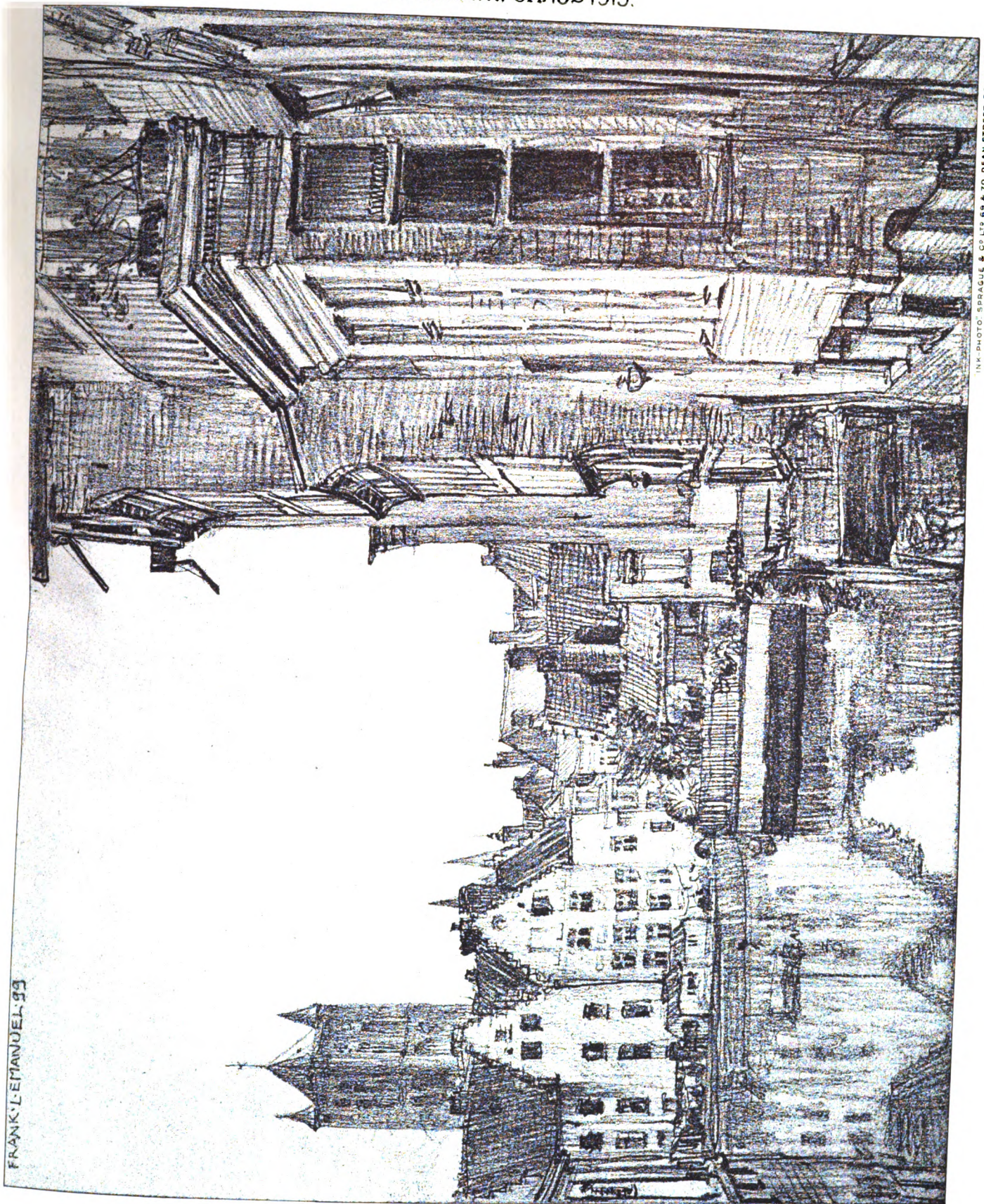
"INK-PHOTO" SPRAGUE & CO. L19 69 & 70, DEAN STREET, SOHO, W.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

Prize Drawing by "PLATO."



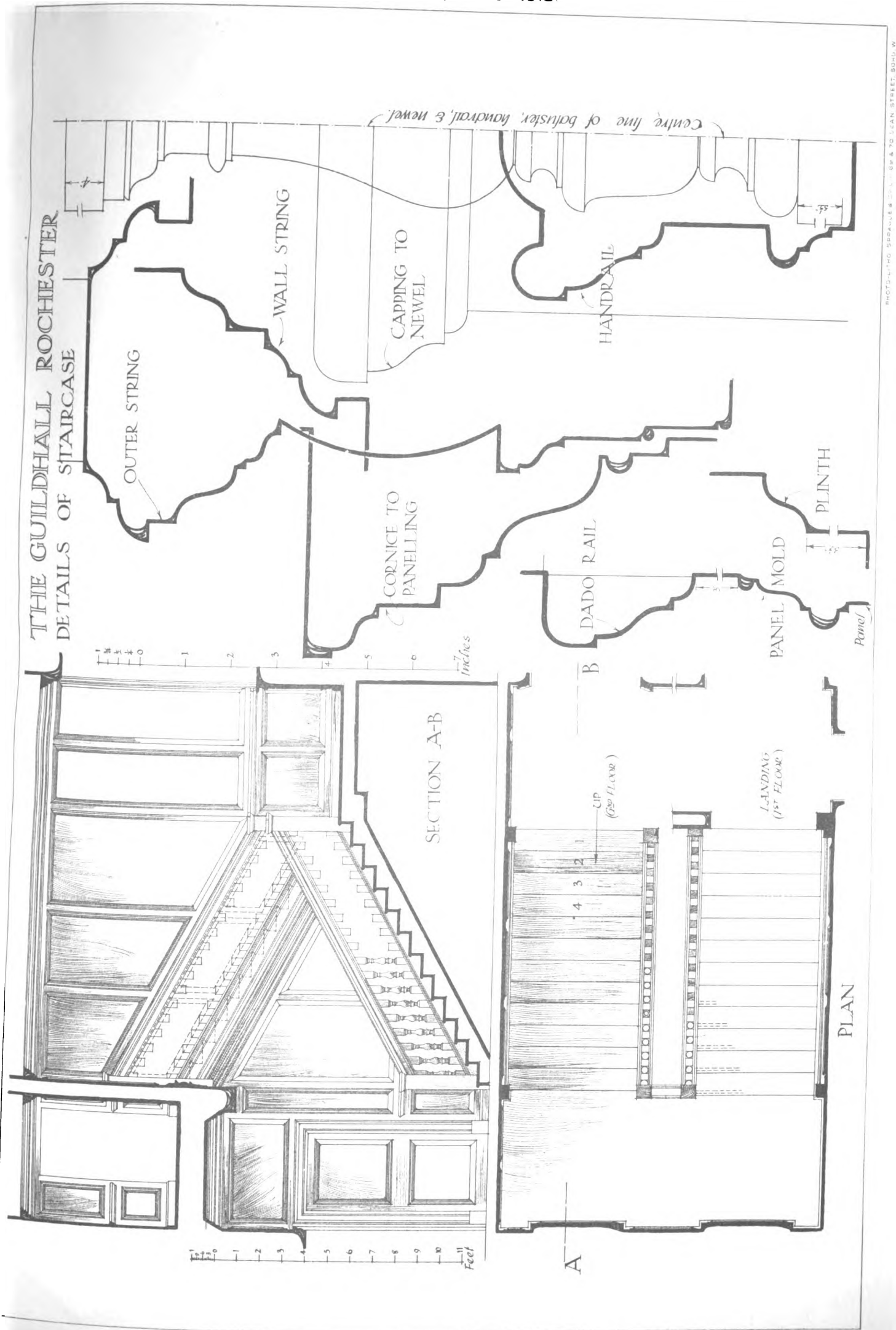
MONTAGNE DES ARTS, BRUSSELS.
From an Pencil Drawing by MR. FRANK L. EMANUEL.



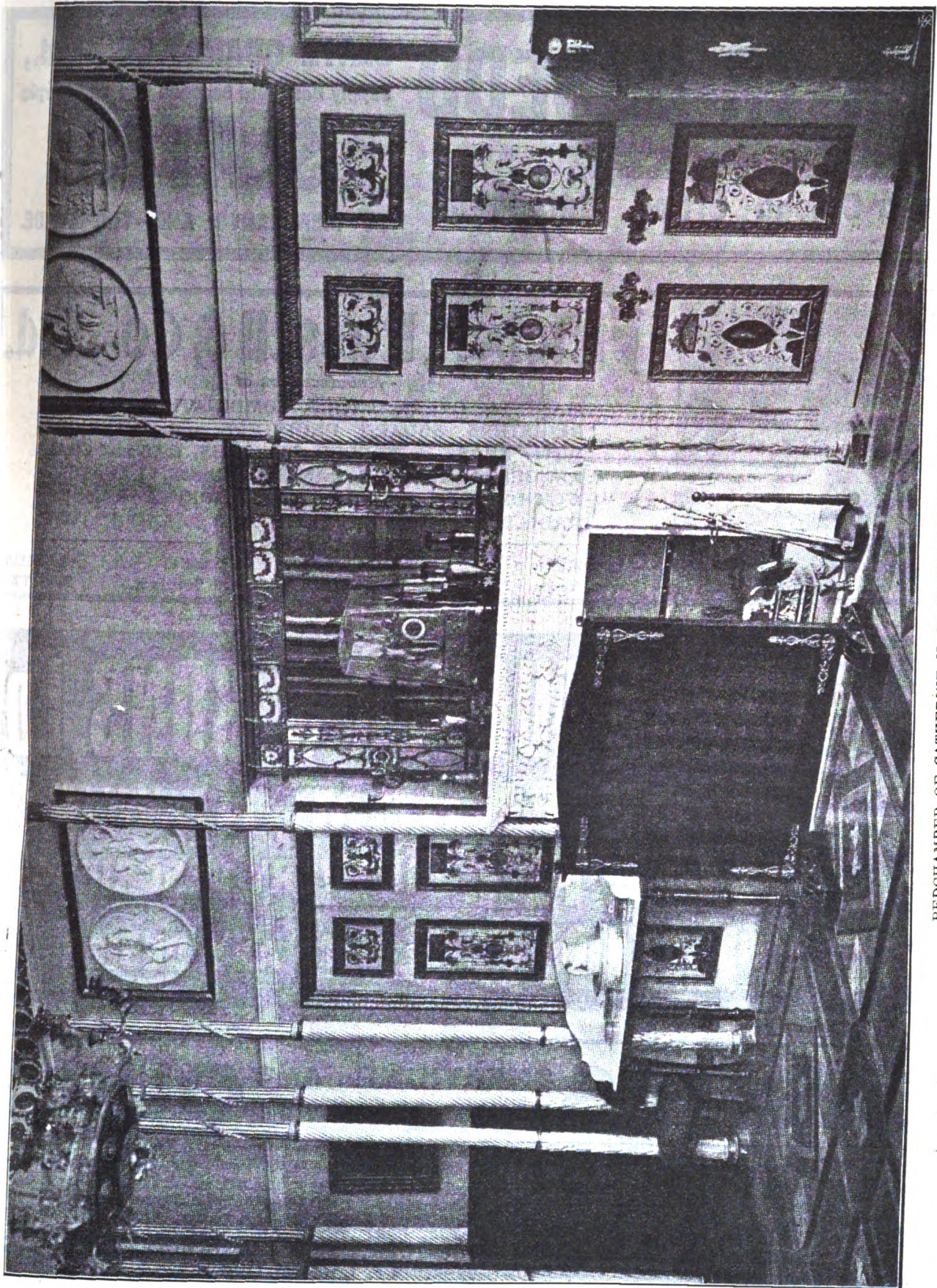
VIEW IN GHENT

From a Pencil Drawing by Mr. Frank L. Emanuel

INK PHOTO SPRAGUE & CO. LIT. 69 & 70, DEAN STREET, SOHO, W.



"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.
Prize Drawing by "PLATO."



BEDCHAMBER OF CATHERINE II. IN TSARSKOYE SIELO PALACE.

this he attached little importance. Two stones of a totally different character so far as weathering properties were concerned might have the same chemical analysis. Personally he attached far more value to the results due to crushing strength. Some fifty or sixty years ago great consternation was caused by the decay of the stone used for the Houses of Parliament, and which came from Bolsover. The authorities were still experimenting as to how it could be best preserved. The question of the cementing together of two stones was now exercising the minds of all good master masons, and he knew of one or two who were experimenting. Everyone knew that if the Portland cement was of at all

a fiery nature it was one of the worst things they could have to deal with. No one would be more pleased than the master masons if a good substitute could be found. If the different inquirers would put themselves into touch with practical men on this subject they would get a lot of valuable information.

Mr. F. Corben, in seconding the vote, said they would one and all agree that it was very generous of Mr. Munby to give up an evening for the purpose of meeting master stone-masons and imparting valuable information. As to weathering, he thought they would all agree there was nothing to beat Ketton stone. Beer stone was not an oolite lime-

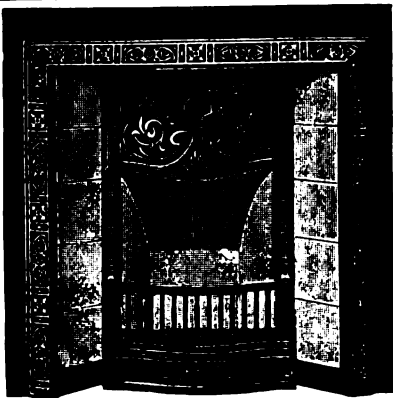
PEN-YR-ORSEDD

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

SLATE QUARRY CO., Ltd.,
Supply Best and Seconds Red and Purple

SLATES

TO MERCHANTS AND THE TRADE.



No. 473 REGISTER.

Fletcher, Russell & Co., Ltd.

Manufacturers of

MANTELS, OVERMANTELS, COMBINATION MANTEL
REGISTERS, SQUARE REGISTERS and INTERIORS
WITH BRASS or COPPER CANOPIES, GAS and COAL
RANGES, YORKSHIRE RANGES, CURBS, LAVATORY
STANDS, GAS STOVES, GAS COOKING RANGES,
RADIATORS, WORKSHOP AND LABORATORY
APPLIANCES, &c.

WARRINGTON:
Palatine Works.

MANCHESTER:
130-132 Deansgate.

LONDON:
134 Queen Victoria St.

BRUSSELS:
20 Rue T'Kint.

W. M. DUNCAN TUCKER & SONS, LD.

TELEPHONE
2
TOTTENHAM.

TOTTENHAM. N.

TELEGRAMS
"HORTICOLE
LONDON"

JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll. Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 " Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs. Triple-ply - 90 lbs.
Double-ply - 65 lbs. Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

stone, but simply a fragmentary chalk. He always hated to see them putting Portland cement between good stones.

Mr. C. W. Courtney supported the vote of thanks, which was carried by acclamation.

Mr. Munby briefly replied and the meeting terminated.

THE ACTION OF AN ALKALINE NATURAL WATER ON LEAD.*

By J. F. LIVERSEEGE and A. W. KNAPP.

THE water supply of Birmingham is gathered chiefly in Wales. The water is slightly alkaline: it does not appreciably dissolve lead (absence of "plumbo-solvency"), but unless treated it corrodes or "erodes" bright sheet lead. To prevent any danger from this action, a small proportion of powdered chalk is added to the water in Wales. This treated water flows to Birmingham through an aqueduct seventy-three miles long.

Lead Pipes.—For these experiments a series of lead pipes was connected with the supply and analyses of the water made over a period of five years. Hundreds of samples were also taken from consumers' pipes and from lengths of lead pipes closed with corks. For short periods the total lead dissolved from the pipes increased with time, but different lengths of the same pipe showed considerable variation. As a rule a pipe becomes with age less sensitive to the action of the water, but the rate of this change varies greatly with different pipes. Treatment of new pipes with a dilute solution of potassium permanganate gave them a considerable power of resistance to the action of the water.

Sheet Lead.—Many experiments were made on the sheet lead "erosion" test, and for practical purposes a duration of one day is preferred to the seven or fourteen days suggested by Dr. Houston. We find that erosion is due to the action of oxygen in the presence of water. The amount of lead eroded is affected by the distance from the lead to the water surface, is generally proportional to the area of the surface of the lead exposed, and does not depend on the volume of the water.

With untreated water carbon dioxide up to 1 per cent. by volume produced little effect on the amount of erosion; when 2 or more per cent. of carbon dioxide is present erosion no longer occurs, for the liquid remains clear, but lead is dissolved, in amount much less than that removed by erosion. Given sufficient oxygen, the alkalinity of the water is the principal factor determining the amount of erosion. The use of (a) lime to prevent erosion was not found satisfactory, the presence of three to nine parts per 100,000 of water reduced the erosion, but smaller or larger quantities were of little, if any, use. Four parts per 100,000 of (b) calcium carbonate gave protection, and as little as two parts per 100,000 of (c) calcium bicarbonate were sufficient to practically prevent erosion. Filtration through sand had little effect on the action of the water on lead. No evidence was found of a seasonal variation in the action of the water on lead, though the colour and amount of organic matter varied considerably.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

Berkshire.

Abingdon.—Fire Station, Bury Street.

Buckinghamshire.

Botolph Claydon.—Memorial Clock Tower. Mr. G. H. Manning, architect, 12 Temple Square, Aylesbury.

Great Horwood.—House, for Mr. F. Cary.

Cheshire.

Thingwall.—Smallpox hospital (£8,000).

Cornwall.

Carbis Bay.—House, garage, &c. Messrs. Grylls, Hill & Hill, architects, Cross Street, Helston.

Derbyshire.

Borrowash.—Mixed schools (£8,400).

Derby.—Girls' Secondary school, Parkfields Cedar, Kedleston Road (£9,500).

Ockbrook.—Mixed schools (£8,400).

* Abstract of Paper presented to the Birmingham meeting of the British Association.

DEVON.

Kilmington.—Vicarage.

Sidmouth.—Working-class dwellings.

Dorset.

Bridport.—Hospital. Messrs. Shayler (F.R.I.B.A.) & Bell, architects, Wrekin Hotel Chambers, Wellington, Shropshire.

Durham.

Pallion.—St. Mary Magdalene Church.

Penshaw.—N.E.R. Co.'s Station. Mr. W. Bell, architect. Messrs. Fenwick & Co., contractors, Northumberland Road, Newcastle.

Sedgeleach.—Six houses, for Mr. J. Fisher.

Shiney Row.—Two houses, Chester Road, for Mr. G. McColl.

West Pelton.—Wesleyan Chapel (£1,600). Accommodation for 300 sittings.

Essex.

Tolleshunt Major.—Six workmen's dwellings (£950).

Witham.—Two cottages at Blunt's Hall Farm and five cottages at Howbridge Hall Farm, for the Essex C.C.

Hampshire.

North Warnborough.—Six cottages, for Hartley Wintney R.D.C.

Hertfordshire.

Bishops Stortford.—Congregational Church Sunday Schools (£3,000).

Lancashire.

Bolton.—Dairy, Kay Street, for the Bolton Co-operative Society, Ltd.

Twenty houses, Lingholme Avenue, for Mr. Bramhall.

House and shop, Ainsworth Lane, for Messrs. Leigh Bros., Ltd.

Eighteen houses, Hulton Lane, for Mr. J. J. Harrison.

"Ravenhurst," Chorley New Road: additions for Mr. G. Roscoe.

Houses, Thorns Road, for Mr. W. E. Yates.

Mission Hall, Belvoir Street, Tongue, for Mr. F. R. Freeman.

Picture Theatre, Fletcher Street, for Mr. T. E. Smith. St. Chad's Sunday School, corner of Belvoir and Longworth Streets.

Spinning rooms, Turton Street, for Messrs. J. & W. Ward, Ltd.

Weaving shed, off Deane Road, for Bolton Weaving Co., Ltd.

Leicestershire.

Hinckley.—Proposed public elementary school for about 250 children (£2,000).

Melton Mowbray.—Refuse destructor: extension (£1,950). Messrs. Dawson & Manfield, engineers.

Lincolnshire.

Gosberton and Pinchbeck.—Cottages, for Spalding R.D.C.

Holbeach.—Eighteen houses, for U.D.C. (£3,600).

Osgodby.—Isolation Hospital: extension, for Caistor R.D.C.

Pinchbeck.—(See above.)

Northamptonshire.

Crick.—Proposed public elementary school for about 150 children.

Peterborough.—Theatre, Westgate.

Northumberland.

Corzodge.—Asylum: additions (£21,000). Mr. J. W.

Dyson, architect, 22 Blackett Street, Newcastle-on-Tyne.

Mr. A. Pringle, contractor, Cramer Dykes, Gateshead.

Shropshire.

Wellington.—Premises, Station Road: enlargement. Mr. A. Jenkins, architect, Market Street.

Somerset.

Bath.—Workhouse: infirmary.

Staffordshire.

Hanley.—Domestic and manual instruction centre (£4,760).

Stoke-on-Trent.—Bradwell Sanatorium, Wolstanton: extension (£7,500).

Surrey.

Croydon.—Two temporary halls, Wiltshire Road, for Mr. W. Fitchew.

Ten houses, Kilmartin Avenue, for Mr. P. Richardson.

Four houses, Leander Road, for Mr. W. B. Coomber. House, Normanton Road, for Mr. A. Kemp.

No. 203 St. James' Road: conversion into two houses. Mr. D. Weightman, architect, 78 North End.

106 NEW BOND STREET:
Telephone: 2994 Mayfair
Telegrams: "Surpass, London."

SOUTH NORWOOD:
Telephone: 1063 Croydon.
Telegrams: "Smisurato, London."

JAMES SMITH & SONS (NORWOOD) LTD.

106 NEW BOND STREET, W., and
JUNCTION WORKS, SOUTH NORWOOD, S.E.

Builders and Decorators.

Every description of Alterations,
High Class Decoration, Plumbing,
Drainage, Heating and Electric
:: Light, Bells, Gas, etc. ::

ESTIMATES FREE.

SCAFFIXER

THE PATENT RAPID-SCAFFOLD-TIE & CO.
• 124 VICTORIA ST. WESTMINSTER •

SCAFFOLD TIES

TRADE-MARK

TELEPHONE: 6030 WESTMINSTER
TELEGRAMS: "SCAFFIXER" LONDON
CODE: A-B-C (5th Edition)



REDPATH, BROWN & CO., LTD.

Established 1802.

Incorporated 1896.

CONSTRUCTIONAL ENGINEERS.

Immediate delivery of Plain and Riveted Steel Work.
Stock consists of **20,000 Tons** in British Standard
Sections of Joists, Channels, Tees, Angles, and Plates.

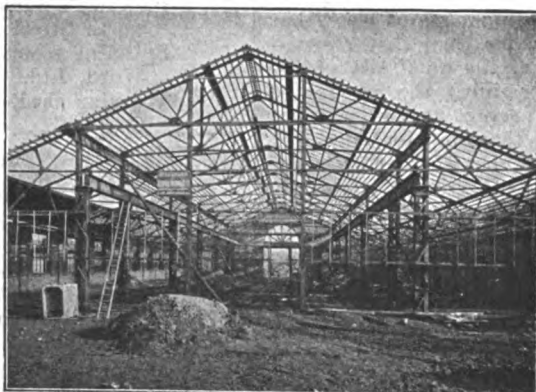
Two Specialties in Steel Construction:

BROAD FLANGE BEAMS.

SOLID COLUMNS.

Broad Flange Beams
used as stanchions
prove more economical
than ordinary sections
owing to their greater
radius of gyration.

Large stock of Broad
Flange Beams at our
Works.



Solid steel columns
possess great advan-
tages in certain posi-
tions: Shop Fronts,
Public Halls, Fac-
tories, Warehouses, &c.

Up-to-date plant
for manufacturing.

Large stock.

Prompt delivery.

SECTION BOOKS AND STOCK LISTS ON APPLICATION.

LONDON,
Riverside Works,
East Greenwich.

EDINBURGH,
St. Andrew
Steel Works.

MANCHESTER,
Office and Works,
Trafford Park.

GLASGOW,
Office: 75 Bath Street,
Works: Port Dundas.

BEDFORD LEMERE & CO.

Architectural Photographers to H.M. the King, H.M. Office of Works, H.M. Office of Woods, London County Council, &c.
PHOTOGRAPHS TAKEN & PROOFS DELIVERED SAME DAY. 50,000 ARCHITECTURAL & DECORATIVE ON VIEW.

PRICE LISTS AND ESTIMATES FREE.

Tel.: 4258 Central.

147 STRAND, LONDON, W.C. (First floor).

Established 1862.

"COVERINE"

REGD.
FLAT UNDERCOATING.

Write for Sample to **WALTER CARSON & SONS,**

**ONE COAT TRANSFORMS
BLACK into WHITE.**

Price 48/- per cwt. in 7 lb. tins.

Grove Works, Battersea, S.W.
And at BACHELORS' WALK, DUBLIN.

ENGLAND—continued.

SURREY (CROYDON)—continued.

House, Warwick Road, for Mr. H. Elliott.

Three houses, Warwick Road, for Mr. H. A. Allen.

Nine shops with houses, Lower Addiscombe Road, for Mr. A. W. Dawson.

Cinema Theatre, London Road, for Mr. S. W. Parker.

Picture Theatre, 18 North End, for Mr. G. L. Edgar.

Guildford.—Twenty cottages, Old Farm Road. Council surveyor.

Maldens and Coombe.—Council Offices: extension (£2,000).

Shottermill.—Schools, Farnham Lane.

SUSSEX.

Horsham.—Market, Nightingale Road.

WARWICKSHIRE.

Birmingham.—Cinematograph Theatre, Heathfield Road, Villa Cross, Handsworth, for Mr. C. B. Perry.

Cinematograph Theatre, Pershore Road and Hazelwell Street. Mr. Roland Satchwell, architect, 33 Newhall Street.

WORCESTERSHIRE.

Malvern.—Cwleigh Church and schools: additions and alterations (£600).

YORKSHIRE.

Middlesbrough.—Divisional Police Station, Dacre Street (£2,650).

Whiston.—Church Institute (£1,500). Mr. J. Totty, architect, 20 Moorgate Street, Rotherham.

York.—Weights and Measures Departmental Offices and Fire Brigade residences, Lower Friargate (£2,500).

WALES.

Cardiff.—Offices, High Street. Messrs. Thomas & Harding, architects, Queen's Chambers. Messrs. Blacker Brothers, contractors, Clive Road (£2,147).

Cefn Maur.—Manse for the Tabernacle Church. Mr. G. M. Tune, architect, Woodbank, Trevor, Llangollen. Mr. J. T. Jones, contractor (£600).

Corwen.—Alterations, &c., for Children's Homes, for the Board of Guardians (£600). Mr. Humphreys, contractor, Cefn.

Gorseinon.—107 Garden-village houses. Mr. W. Beddoes-Rees, architect, 3 Dumfries Place, Cardiff.

SCOTLAND.

Glasgow.—Electric sub-station offices and workshops and granary offices, Castlebank Street, Partick, for the Clyde Navigation.

No. 50 Bothwell Street: addition for the Central Agency, Ltd.

Poorhouse, Merryflatts, Govan: additions for the P.C.

Stables, Crow Road, Partick, for the Caledonian R. Co.

Three villas, Old Cathcart Road, Cathcart, for Mr. S. Mitchell.

Kirkcaldy.—Sanatorium for twenty-four beds; also dispensary.

Leith.—Board School, North Junction Street, for 1,635 places. Mr. G. Craig, architect, 85 Duke Street.

Mawcarse.—Sanatorium (£20,000). Mr. A. C. Dewar, architect, 10 Durie Street, Leven.

Methil.—Parish Church (£5,000).

IRELAND.

Ballaghaderreen (Co. Mayo).—Diocesan seminary for the Lord Bishop of Achonry. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street, Dublin.

Carrickmacross.—Convent Chapel for the Sisters of St. Louis, Distillery Lane. Mr. J. McDonnell, architect, 27 Chichester Street, Belfast. Mr. J. M'Guinness, contractor, Bridge Street, Dundalk.

Newry.—Twenty-six labourers' cottages. Mr. J. Sands (of Knockanarney), contractor for one cottage at £160.

PATENT SPECIFICATIONS PUBLISHED
OCTOBER 2, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 13,564. June 10, 1912.—Max Hartung, Barbarossastr 51, Berlin. Process of making artificial stone.

18,379. Aug. 10, 1912.—A. B. Cleworth, Worcester Engineering Works. Ventilating and humidifying apparatus.

20,206. Sept. 5, 1912.—J. B. Gall, 49 Glenlyon Road, Eltham Park, Kent. Paints, enamels, varnishes, and the like and their manufacture.

20,295. Sept. 6, 1912.—W. W. Timewell, 172 Algernon Road, Lewisham, S.E., and Sidney Sheen, 6 Batsford Road, St. John's, Deptford, S.E. Wall and the like plugs.

20,652. Sept. 10, 1912.—William Fraser, 90 Gower Street, W.C. Device for filtering or separating dust from air and gases.

20,705. Sept. 11, 1912.—Thos. Markham, 4 St. Vincent Street, Shore Road, Belfast. Fastenings for doors, windows, and the like.

20,722. Sept. 11, 1912.—W. J. E. Parlett, 223 Twyford Avenue, Portsmouth, Hants, and C. H. Jarrett, 52 King's Road, Southsea. Vacuum cleaners.

20,789. Sept. 12, 1912.—William Brothers, Meadow House, Whaley Bridge, Derby. Plaster cement.

21,086. Sept. 16, 1912.—Penberthy Injector Company, 360 Holden Avenue, Detroit, Wayne, Mich., U.S.A. Automatic drainers for cellars and the like.

21,318. Sept. 19, 1912.—Thos. Anthony, 86 James Street, and J. H. Williams, Garth Hywel, Mina Street, Llanelly. Trough or gutter bracket.

22,753. Oct. 5, 1912.—Claudius Ash, Sons & Co., Ltd., 5-12 Broad Street, Golden Square, W., and William Mason, 80 Sparsholt Road, Crouch Hill, N. Valves for gas, water, and other liquids.

22,825. Oct. 7, 1912.—Felipe Inda, Seccion 2A de la Secretaria de Fomento, Mexico, D.F. Operating apparatus for doors and gates.

23,027. Oct. 9, 1912.—F. G. Rowson, Holmfild, Fairlawn Road, Lytham, Lancs. Rain or waste-water pipes.

26,078. Nov. 13, 1912.—J. S. E. de Vesian, 28 Victoria Street, Westminster, and Ralph Freeman, Graden, Hendon Avenue, Finchley. Reinforced-concrete structures.

26,938. Nov. 23, 1912.—Leopold Myers, Charlotte Street Pen Works, Charlotte Street, Birmingham. Drawing compasses.

27,261. Nov. 27, 1912.—John Shanks, Tubal Works, Barrhead, Renfrewshire. Baths.

27,649. Nov. 30, 1912.—James Fergusson, 55 Jesmond Dene Road, Newcastle-on-Tyne. Ovens of kitchen and like ranges.

27,904. Dec. 4, 1912.—C. T. Gann, 17 Marjorie Grove, Clapham Common, S.W. Casement windows and fanlight stays.

29,193. Dec. 18, 1912.—Joseph Gribbs & Co., Ltd., Loughborough, and J. S. Ewart, 38 Rylands Road, Beeston, Notts. Building walls, partitions, &c.

538. Jan. 8, 1913.—A. K. Wilson, Aetna Works, Sheffield. Saws.

3,131. Feb. 6, 1913.—H. E. White, 1,435 Kensington Avenue, Youngstown, Mahoning, Ohio, U.S.A. Expanded metal machines.

6,281. March 13, 1913.—Dated under International Convention March 13, 1912. J. B. Meunier, Bourges, France. Parquet boards.

6,969. March 22, 1913.—Robert Harrison, Moss Street, Blackburn, Lancs. Method of and means employed for repairing flagged or stone floors, steps, and the like.

7,702. April 1, 1913.—Dated under International Convention Nov. 19, 1912. Emile Orval, 49 Avenue Rogier, Brussels. Process for and apparatus for regulating hot-air heating installations.

10,049. April 29, 1913.—Cesare Vittori, 32 Via Mamiani, Rome. Water waste and air fittings for closet basins.

13,986. June 17, 1913.—Dated under International Convention Sept. 2, 1912. Paul Richter, Ditterdorferstr 81, Helbersdorf-Chemnitz, Germany. Machine for grinding slabs of natural or artificial stone.

14,874. June 27, 1913.—Dated under International Convention July 23, 1912. C. G. P. S. de Traversay, 2 rue Labryere, Versailles. Safety device for gas-lighting and heating installations.

15,704. July 8, 1913.—J. H. Birtwistle, 93 Abbey Street, Accrington, and G. D. Innes, Bennett's Iron-foundry Company, Ltd., Green Lane, Stockport. Fire-grates and fuel holders.

27,177. Nov. 26, 1912.—Leopold Myers, Charlotte Street Steel Pen Works, Charlotte Street, Birmingham. Drawing compasses.

9,141. April 18, 1913.—Dated under International Convention, April 25, 1912. Harburger Eisen-und Bronzewerke A.G., Harburg-on-Elbe, Germany. Apparatus for use in compressing plastic materials.

Tel. Nos.: {Cheltenham, 798 & 799
London, North 2165.

Glasgow, P.O. Central 979.
Manchester, Central 5416.

Telegrams: {Sunningend, Cheltenham.
Sunningend, London.

H. H. MARTYN & CO., Ltd.

CARVERS

And Architectural Decorators.

250,000 feet of Dry ENGLISH OAK in stock.

BRANCHES

LONDON: 192 ALBANY STREET, N.W.

GLASGOW:

30 GEORGE SQUARE.

MANCHESTER:

6 SOUTH KING STREET

Head Office: Sunningend Works,
CHELTENHAM

Is it a FIREPROOF BUILDING you want?

Use URALITE

It is Fireproof, Economical and Easily Fixed.

Is it a FIREPROOF PARTITION or CEILING you want?

Use URALITE

which is Fireproof, Vermin-proof and Damp-proof.

Is it an old building that needs to be made FIREPROOF?

Use URALITE

No Fire can penetrate a URALITE LINING.



Supplied in sheets 6' x 3' or smaller sizes from $\frac{1}{8}$ " to $\frac{3}{8}$ " thick.

"URALITE" is specified by the
L.C.C., H.M. Office of Works, Admiralty, War Office,
Metropolitan Asylums Board, and the leading Architects.

READERS of "THE ARCHITECT" are invited to write
for a copy of our NEW, FULLY ILLUSTRATED BOOKLET.

THE BRITISH URALITE CO. (1908), Ltd.

(Room 17), 85 GRESHAM STREET, E.C.

"THE BEST ENAMELS FOR THE BEST RESULTS."

"ENDELLINE" & "ENDELFLAT"

Used with unflinching satisfaction wherever the finest enamel finish is required.

THOS. PARSONS & SONS,

Makers of the highest class of Varnishes and Japans for over a Century.

**8 Endell Street, Long Acre,
LONDON, W.C.**

27,522. Nov. 29, 1912.—George Parrott, 27 Oakleigh Park Drive, Leigh-on-Sea. Apparatus for automatically opening and closing the supply of water to taps or cocks.

1,352. Jan. 17, 1913.—R. H. Paus, 7 Victoria Park, Shipley, York. Flushing cisterns.

8,141. April 7, 1913.—Dated under International Convention, April 15, 1912. C. H. Douglas, 347 Eastern Avenue, Springfield, Hampden, Mass., U.S.A. Saws.

10,541. May 5, 1913.—James Murray, 87 Argyle Street, St. Helens, Lancs. Construction of flues of back boilers for kitchen ranges.

11,218. May 13, 1913.—John Stevens, 41 George Street, Launceston, Tasmania, Australia. Fire alarms.

12,935. Aug. 1, 1912.—Reginald Weaving and Farranti, Ltd., Hollinwood, Lancs. Switch arrangements for electric heating apparatus.



Wooden Water Pipes.

SIR,—With reference to the interesting subject of old wooden water pipes, I have pleasure to send herewith a photograph of ancient water pipes and appliances forming part of the collection of curios at the Merryweather Museum at Greenwich. The wooden pipes were found during excavations in Throgmorton Street, and doubtless formed a part of the 400 miles of such pipes laid down by the New River Company. These pipes were, I believe, coated in a bath of lime water before being laid, and the joints were made tight with whiting and tallow. The



12,322.—May 27, 1913.—C. L. Baender, 829 20th Street, Oakland, Alameda, California. Portable vacuum cleaners.

13,420. June 10, 1913.—Dated under International Convention, June 18, 1912. A. F. Kopriva, Stony Brook, Long Island, New York. Axes.

Any of the above specifications may be obtained from J. D. Roots & Co.

The Spalding Urban Council have decided to purchase ten acres of land from Alderman Bunting, of Spalding, for £1,500, for a housing scheme.

The Dorcas window in the tower of St. Ives parish church was recently discovered to have been designed by Sir Edward Poynter, P.R.A., in the early days of the stained-glass revival, when he was associated with Burne-Jones, both then unknown men.

wooden piped logs in London were replaced by cast-iron pipes as early as 1820, at a cost of some £300,000.

The stone pipe shown on the left of the photograph is one of those used in the first works for the water supply of Manchester in 1810 to 1814. Stone blocks bored out are mentioned by Herodotus. The blocks were about 2 feet long, with holes about 3 inches to 18 inches in diameter, and had spigot and socket joints put together with Roman cement.

The squirt shown is an old London fire engine dating from about 1588. It was worked by three men, two of whom held the barrel by the handles provided while the third pushed the plunger.

The firecock shown is one of those used in London in the time of Braidwood.—Yours faithfully,

J. COMPTON MERRYWEATHER.

4 Whitehall Court, London, S.W. :
October 3, 1913.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,

and
Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

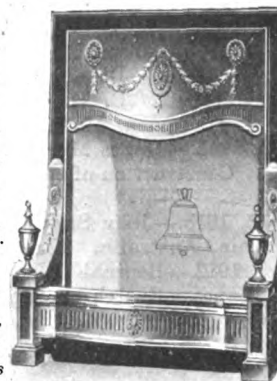
GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

Gold Medal "BELL" Grates

are in use at
Charlton House, Kent.
Lound Hall, Newark.
Guilsboro' Court, Northants.
Rushton Hall.
Westwood House, West Bergholt.
Turville Court, Henley-on-Thames.
Nevill Holt, Leicestershire.
Blunham Grange, Beds.
Milton House, Alsager.
Pollok Castle, Clopton Manor, Oundle.
Polebrook Hall.
Weston Favell House, Northants.
&c., &c.
Illustrated Catalogues free on request.



are in use at
Junior United Service Club.
United Service Club, Lucknow.
Liberal Club, Glasgow.
St. Wilfred's, Portsmouth.
Cardiff Dock Offices.
Sandhurst College.
King Edward Grammar Schools.
Queen's Hospital for Nurses.
Harpurhey Baths.
Spinkwell Mills, Dewsbury.
Royal Bath Hotel, Bournemouth.
Cherterfield House, Hydro, Matlock.
Savoy Hotel, London.
Grand Hotel, London, &c., &c.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W. And Northampton.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curcarsold, Sowest, London." Telephone: Regent 2043.

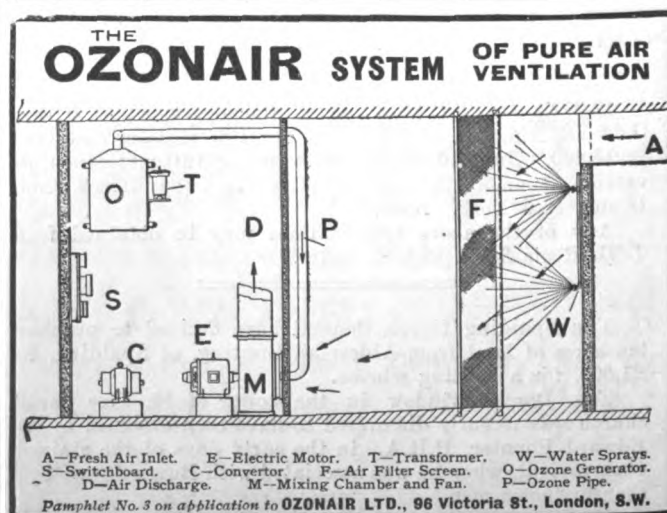
N.B.—All above fitted with the best solid Tyres, i.e., Wood-Milne Steelrubber—other makes to order.

"FLEXIBLE AS A KID GLOVE."

Delure

the perfected paint for outside and inside.

WRITE FOR 20 PAGE HANDBOOK (naming this paper) to
C. CHANCELLOR & CO LTD 15 CLERKENWELL RD LONDON.



The Architect.

CONTENTS.

	PAGE
Greek Art and National Life	349
South Porch of Glasgow Cathedral (illustrated)	350
Notes and Comments	351
Competition News	352
Illustrations :—	
Devonport Municipal Buildings Competition	352
Edmund Wright Almshouses, Nantwich	352
Eighteenth Century Pump, Poole, Dorset	352
Charles Cameron (illustrated)	353
School of the Future : Lighting, Heating and Ventilation	355
Treatment of Woodwork in Decoration	359
Manchester Society of Architects	361
Sheffield Society of Architects and Surveyors	363
Gas Industry in Relation to Smoke Abatement	363
Premises of Textile Industries Association, Paris (illustration)	364
New Public Buildings at Bad Kissingen (illustration)	365
Building Progress in the Provinces	369
British Patent Specifications	371

FORTHCOMING EVENTS.

Friday, October 17.

Royal Sanitary Institute : Provincial Sessional Meeting, Newcastle-upon-Tyne. (Two days.)

Saturday, October 18.

Institution of Municipal Engineers : Southern District Meeting at Crowborough, Sussex.

Monday, October 20.

Institute of Sanitary Engineers : Paper entitled "The Work and Responsibilities of a Sanitary Engineer," by Mr. W. E. Hall, at 8 P.M.

Wednesday, October 22.

Manchester Society of Architects : Paper by Mr. A. E. Richardson, at 6.30 P.M.

Monday, October 27.

Architectural Association : Annual General Meeting ; Presidential Address by Mr. W. Curtis Green, F.R.I.B.A., and Distribution of Prizes, at 8 P.M.

GREEK ART AND NATIONAL LIFE.

At the present day we have all come to recognise that art is necessarily the expression of life, that its products are always in any and every age influenced by and expressive of the environment of the artist, as well as the outcome of his personality; that, in other words, this personality is tinged by his environment. Thus the art of any period and of any country reflects the life of that country at the particular period in which its works are produced. In the appreciation of Greek art these truths were for a time, during the dilettante period of the latter part of the eighteenth century, overlooked. The masterpieces and the minor works of Greek artists were regarded too much as isolated phenomena, each to be appraised and appreciated on its own individual merits apart from any connection with the circumstances under which it was produced, the predecessors on which it was based, and the influences which had directed its particular development. Thus it was that the perfection of Greek art was presumed to have arrived in almost miraculous fashion, rather than to have by slow degrees and gradual steps reached its high pre-eminence from the starting-point of archaic crudity.

Instead of looking back to the earliest dawn of civilisation, the scholars of the last years of the eighteenth century scoffed at the legends and traditions which to them were the only indication of the earliest civilisation of Greece. They "dubbed Herodotos 'the father of lies,' laughed Theseus to scorn, and made Herakles a sun-god. So far from admitting that there had been great men before Agamemnon, criticism denied Agamemnon himself a real existence. Troy never was, Odysseus never wandered, even the coming of the Dorians was a doubtful thing. Time was not, for Greece, before the first Olympiad. Imagination hauled at anything to which a date could not be attached in neat figures. History began in 776 B.C." In such words does Mr. Kaines Smith express the standpoint of the dilettanti admirers of Greek art. Now we know that there existed in Greek lands long before Homer and Herodotos a marvellous civilisation which included amongst its activities remarkable artistic work. Our knowledge of this ancient civilisation from the wreck of which grew that of Greece is due to modern archaeological science and investigation, led by Schliemann, Evans, and other enthusiasts. Troy, Mycenæ, and Crete have opened up to us a picture of prehistoric civilisation

which, marvellous in itself and interesting to an extraordinary degree, is of still higher importance as furnishing us with an indication of the sources from which the earliest art of Greece was derived.

In his most delightful recently-issued volume * on "Greek Art and National Life," Mr. Kaines Smith clearly pictures the actual discoveries, and reconstructs for us in vivid and telling fashion the life which those discoveries indicate in the Minoan civilisation of Crete. The power of Crete, the centre of the Ægean dominion, came to an abrupt end, as is forcibly and lucidly portrayed by Mr. Kaines Smith, at the sack of Knossos, and then our attention is turned to the Mycenaean civilisation, the art of which is by our author believed to have been largely influenced by Crete, although he points out that the mainland architecture was in certain characteristics diametrically opposite in system and in caste to the Minoan type. "The Cretans taught their Ægean kinsfolk of the mainland how to decorate their palaces; that is well shown by the frescoes at Mycenæ, by the fresco at Tiryns of the bull-sport with its direct imitation of the art of Knossos, and by the splendid remains, found in the vestibule of the palace on Tiryns hill, of just such a frieze of carved alabaster set with studs of dark blue glass as wandering Odysseus saw in the palace of Alcinoüs in Phæacia. How much of this is indicative of Cretan trade, how much of Cretan occupation, and how much of loot—the frieze at Tiryns was ignorantly set along the foot of the wall, where its architectural meaning was lost—it is impossible to say. What is clear is that the architectural skill of the mainland folk at or about the end of late Minoan II. was nearly equal to that of Crete. It was in the skill of decoration that they were imitators of their greater cousins." The civilisation of Mycenæ is also well put before us by Mr. Kaines Smith, and in its history he brings us down to the days when the age of iron was just ready to begin in Greece, somewhere in the neighbourhood of a century before the traditional date of the siege of Troy in 1199 to 1189 B.C.

In the discussion of the Homeric age Mr. Kaines Smith takes the view, which he very persuasively puts forth, that the poems of Homer, the Iliad and the

* *Greek Art and National Life.* By S. C. Kaines Smith, M.A., sometime scholar of Magdalene College, Cambridge, author of *The Elements of Greek Worship.* With seven photogravures and many other illustrations. (London: James Nisbet & Co., Ltd. 7s. 6d. net.)

Odyssey, were the writings of those who lived a century or so after the siege of Troy. The Homeric kings he makes out to have been the representatives of an Aryan, fair-haired Northern race, who came down the trade routes typified by the legendary labours of Herakles to the rich cities of the south and brought with them the Achæan gods, "Zeus of the golden hair, god of thunder and sky and land, the one great god; Apollo, golden-haired Apollo of the Far North, 'Hyperborean' Apollo, the Far-shooter, whose arrows are death, the god of prophecy, interpreter of Zeus, and god of the sun, first and greatest child of Heaven; and his sister Artemis, goddess of women and womanly virtue, strength, grace, loveliness, and of the sun's counterpart, the moon." Thus does he emphasise the forcible proofs of the Northern origin of the Homeric ruling caste, adding thereto the facts that the heroes of Homer wore a great many garments, and that they fastened those garments with brooches, both characteristics of people who lived in a cold climate.

The composition of the Greek nation is by our author explained as compounded of the Ægean element, represented by Crete and Mycenæ, the Aryan element introduced by the Homeric leaders, and the subsequent Dorian and Ionian invasions of later Aryan immigrants, and in this mixture the Ægean element supplied the manual dexterity of the Greek artist and the Aryan element his abstract religious idealism, from which arose in due time the perfection of Greek sculpture. The pre-eminence of Greek art in sculpture rather than in painting is assigned by our author to the influence of climate and atmosphere, and he makes the broad statement that "there is no great northern sculptor, there is no great southern colourist."

The use of colour in Greek sculpture is explained first of all as a necessity of the imperfect technique of the earliest craftsmen. "The imperfections of his own work assail him. The thing he makes is like nothing—it is dead. Colour comes to his aid; he puts colour in the cheeks, pupils in the eyes, broad masses of colour on the rudely incised drapery. The strong simple contrasts enliven the statue, and differentiate clearly, where the poor skill of the sculptor fails, between flesh and garments." This early painted sculpture remains in evidence over the first three-quarters of the sixth century B.C., during which a conventional scale of colour was evolved, approximating on the one hand to the primary colours of painted decoration, on the other to the natural colours of the object. As the skill of the sculptor increased his use of colour diminished and gradually gave place to the marble itself, toned to a rich creamy white in the flesh surfaces and in the drapery either lightly washed with pale but definite colour, through which the texture of the marble remained visible, or picked out with vivid border-patterns and painted embroidery, the whole showing up strongly against a dark uniform background, like a group of sunlit figures against the shadow of a hill.

The gradual development of Greek sculpture from the archaic work of Crete, Samos, and Ægina, through a transitional period to its culmination in the days of Pericles, the spirit of unrest that followed and the decline in expression, allied with supreme ability in technique that characterised the latest work of Greek sculptors, are all well set forth in detail and explained with reference to the circumstances of current Greek life by the author.

Very fascinating and compelling is the style of Mr. Kaines Smith's writing, so that the reader may readily be induced to accept as fact the fancy of a fervent imagination, as, for example, the "unconscious symbolism" that the author attributes to the "Diskobolos" and the "Marsyas" of Myron. Conscious and intentional symbolism in art is far more rare than critics and expositors would have us believe, and more often than not the hidden meaning is *ex post facto* rather than even sub-consciously impellent.

There is some confusion of thought in the explanation given by our author of the vital change in principle introduced by the sculptors of the transition from Archaic to Classic. He speaks of "rhythm" as synonymous with "balance," but, although rhythm is useful as a component of the expression of movement and balance is an essential in any sculptural expression of movement, so that rhythm and balance may be co-existent, they are not therefore identical.

In his advocacy of a wooden origin for the architectural features of the Doric order, Mr. Smith, as do many holding a similar view, goes too far in insistence upon a timber prototype for the column. Granted that all the parts of the entablature may be explained with a sufficiency of conviction as dictated by a tradition of timber construction, this is far from being the case with the column, despite the undoubted use of timber posts. Timber posts are slender in proportion; the earliest Doric columns are squat in comparison with the later, and are just such forms as masons of limited skill and confidence would adopt, as did the builders of Norman times in the construction of piers of ashlar masonry filled in with rubble.

Thus, whilst we can entirely recommend Mr. Kaines Smith's book as a most delightful and illuminating guide to the comprehension of Greek art, it is necessary to guard against being carried off one's feet by the brilliancy of his writing to an acceptance of all his conclusions and assertions.

SOUTH PORCH OF GLASGOW CATHEDRAL.

THE south porch of Glasgow Cathedral is a beautiful example of the pure Early English style. It dates from about the year 1258.

The groined vault in the centre with its once richly carved boss, the simple character of the mouldings, and its fine proportions throughout give it a charm worthy of deeper study.

The capitals inside the porch have been richly carved with foliage, although they are now somewhat decayed, while those outside are outlined with simple mouldings of Early English type. A stone seat flanks either side of the porch in the inside.

The windows along the wall on the outside are of simple lancet form, with richly moulded jambs and arches.

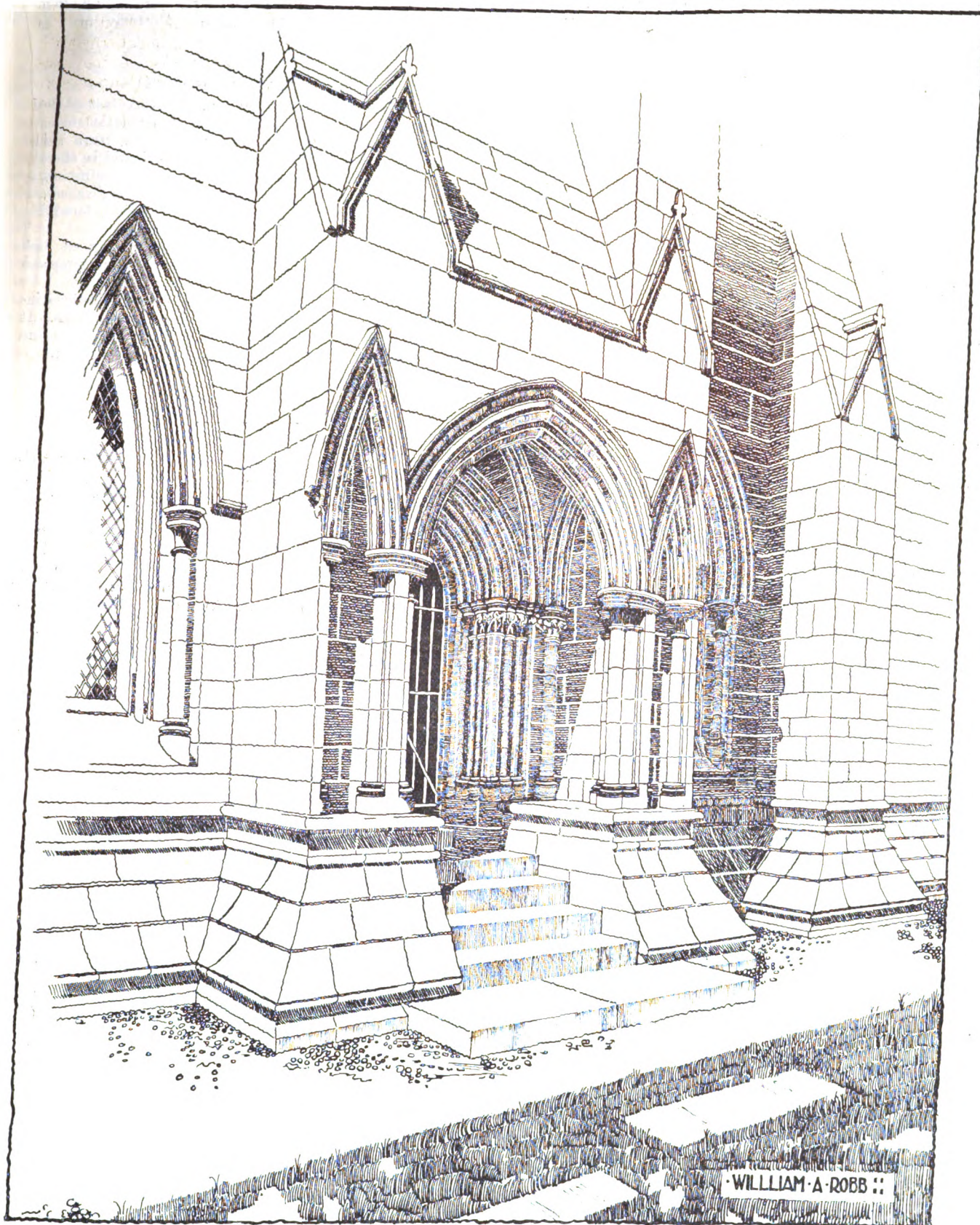
The porch forms the principal entrance to the lower church, which has a centre and two side aisles with short squat columns supporting the chancel above. It is behind one of these columns that Scott in his romance depicts the dramatic rendezvous of Rob Roy. This lower church with its massive columns, groined vaulted ceiling with richly carved bosses, and the very dim light which enters through the stained-glass windows, makes one think of "the church in the catacombs of Ancient Rome."

In front of the porch is the ancient burying ground of the city, almost covered over with ancient sepulchral monuments, the most interesting of which is a memorial of several "martyrs" of the Covenant, with one of the rhyming inscriptions peculiar to records of that kind. It concludes thus:—

"These nine with others in this yard,
Whose heads and bodies were not spared
Their testimonies, foes to bury,
Caus'd beat the drums then in great fury.
They'll know, in resurrection-day,
To murder saints was no sweet play."

THE President and Council of the Royal Academy invite applications not later than the 21st inst. for a Turner Annuity. Applicants for the Annuity, which is of the value of £50, must be artists of repute in need of aid through the unavoidable failure of professional employment or other causes.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



SOUTH PORCH OF GLASGOW CATHEDRAL.

NOTES AND COMMENTS.

LORD MILNER'S presidential address before the members of the Birmingham and Midland Institute does not open up a cheerful prospect for the immediate future of the building trade. The subject to which he particularly attracted attention was what he described as the "scramble for capital." When enterprises are being pushed forward all over the world demanding extensive use of capital and offering substantial rates of interest, it is only natural that investment should be made in these

enterprises rather than in bricks and mortar in our own country. With Consols at 74, the price of bricks and bricklayers needs to be very much lower than it is in order to attract investment of capital.

The remodelled system of teaching and examinations conducted by the Board of Education in our schools of art does not so far appear to have been entirely satisfactory. The reports of the examining committees for the first of the annual revised examinations, which have

been held during the past summer, have been issued, the general sense of which may be shortly summarised in an extract from the prefatory note of Sir L. A. Selby-Bigge, the Secretary to the Board, who says: "The Board regret to find that their examiners, amongst whom were experienced teachers in schools of art, are not able to report more favourably on the general standard of merit reached by candidates, especially in the subjects of drawing." It would appear, however, that the reason for the unfavourable result of the examinations is largely due to the arrangements, by which industrial art students who are engaged in earning their living during the day are practically debarred from participation in the examinations.

We are pleased to learn that the challenge made by Mr. J. St. Loe Strachey at the inauguration of the weather-board model cottage, which he built at a cost of £150 at Merrow Downs, near Guildford, that if anyone could build a decent cottage for £100 on land which he would provide he would buy it for £110 if it stood a year, has been accepted and won by Mr. Arnold Mitchell, F.R.I.B.A. There is no doubt that a professional architect can always beat an amateur at economical building under equal conditions. Of course, an architect's house is not as cheap as a £150 cottage which has neither drainage nor water supply.

Many of the public seem to be obsessed with the idea expressed at a meeting of the Glasgow Parish Council during a discussion on a recommendation to present an honorarium of 200 guineas to the Council's master of works for his services as architect at the epileptic colony, when a member of the Council said that an architect would have designed a building to be creditable to himself and would have put "poetry" into it. Their experience taught them that "poetry" was expensive.

A good suggestion has been made by a writer in the *Times* with regard to the future custody of the detailed drawings, photographs, and notes of the historical monuments of England collected by the Royal Commission for the purposes of preparing its inventory of these monuments. The suggestion is that each county should have the custody of the records of its historical monuments. This decentralisation would certainly minimise the difficulty of providing storage for a large accumulation of material, and would give an accessibility that would probably induce more frequent study and a higher appreciation on the part of those locally interested than if the material were concentrated in one big storehouse in London.

At the annual meeting of the Shropshire Archaeological Society details were given of the discoveries made at the buried Roman city of Uriconium during the past year. These include the discovery of a temple and other buildings, whilst numerous coins which have been obtained suggest that the occupation of Uriconium began about 80 to 90 A.D. and lasted until the close of the fourth century. The first two years' work at Castell Collen, near Llandrindod Wells, have brought to light interesting evidences as to the nature of this Roman fortress in mid-Wales. The evidence of coins and pottery seems to point to an occupation which began about 85 or 90 A.D. and continued down to the close of the third century.

Even more attractive than usual, from an architectural point of view, is this month's issue of the *Connoisseur*. A well-illustrated article on some old Dutch colonial furniture introduces quaint and interesting variants on the more familiar types of seventeenth and eighteenth-century woodwork. An article by Mr. J. Starkie Gardner on some old wrought-iron gates at Hampstead brings before us some of the many excellent examples of smithcraft which are to be found in London

and its suburbs. Other articles deal with "Chinese Porcelain and Applied Art at the Manchester City Art Gallery," and a review of Mr. Josiah Wedgwood's newly published book on "Staffordshire Pottery and its History."

COMPETITION NEWS.

BARNSELY.—The Town Council on Tuesday last adopted a recommendation that architects should be invited to submit competitive designs for the proposed new Town Hall, and that premiums of £100, £50, and £25 should be offered. The estimated cost, exclusive of site and furnishing, must not exceed £20,000. The chairman of the special committee stated that the foundation-stone will not be laid before 1916. An assessor is to be appointed.

IRELAND.—The Cookstown Urban Council agreed last week to offer a prize of £5 for the best design for a proposed school.

NORTHAMPTON.—The Town Council have decided to invite competitive designs for the erection of public baths. It is proposed that the baths be erected on the Corporation property at the rear of the free library in Abington Street.

ILLUSTRATIONS.

DEVONPORT MUNICIPAL BUILDINGS.

THE design as illustrated was prepared in order that the site, which was of a peculiarly difficult nature, could be so utilised that waste building and excavation was reduced to a minimum.

The main features of the plan are the accessibility of all the blocks from the Council Chamber suite and the placing of the main stairs in such a position as to make the Guildhall, Courts, Council Chamber and committee rooms practically all *en suite*. The fire station and police blocks are placed towards the north of the site.

The elevations were designed on simple Classic lines, due consideration being given to local tradition and history by the sculptured groups in main feature.

THE EDMUND WRIGHT ALMSHOUSES, NANTWICH.

THESE Cheshire almshouses are pleasantly satisfying in their absence of assumption and their quiet and dignified refinement.

EIGHTEENTH-CENTURY PUMP AT POOLE.

DESCRIPTIVE particulars of this interesting example of ancient leadwork are included on the drawing, which has been made by a contributor to "The Architect" Students' Sketching and Measuring Club whose work usually appears under the nom-de-plume of "If."

THE Royal Institute of British Architects will hold the first ordinary general meeting of their new session on November 3, when Mr. Reginald Blomfield, A.R.A., will deliver his Presidential opening address. The following papers will be read during the session:—Nov. 17, "The New Wesleyan Hall," by Mr. H. V. Lanchester (F.); Dec. 15, "The Repair of Ancient Buildings," by Mr. W. A. Forsyth (F.); Jan. 26, "London Traffic Problems," by Colonel Sir Herbert Jekyll, K.C.M.G.; Feb. 23, "London Railway Stations," by Mr. Paul Waterhouse (F.); March 23, "On Borrowing in Architecture," by Mr. L. March Phillips; April 6, "Professional Practice and Conduct," by the Practice Standing Committee; April 20, "London's Bygone Building Acts and the Development of London," by Mr. W. R. Davidge (A.); May 18, "The London Society and its Aims," by Mr. T. Raffles Davison (H.A.).

A BEGINNING has just been made with the erection of the south-west tower of St. Mary's Episcopal Cathedral, Edinburgh. The cathedral, it may be recalled, was designed by the late Sir Gilbert Scott, and was built between 1874 and 1879. The money, which was largely provided by the Walker Trust, was not sufficient to complete the two western towers, which were only carried to a height of 62 feet. The new work, which has been entrusted to the care of Messrs. J. Oldrid Scott & Sons, will include a belfry and spire, giving a total height of 202 feet. The contract price is £5,000. The quarry from which the cathedral stone was taken having become exhausted, the tower is to be built of Hailes stone, with Pasture stone for the dressing. The central tower and spire of the cathedral, it may be said, is 303 feet in height.

CHARLES CAMERON.—II.

(Concluded from last week.)

SINCE 1780 Cameron alone is described as conducting all the architectural work at Tsarskoie Sielo. This pretty fully occupied his time. The Empress, however, deemed it possible to bestow upon him yet another work. About four miles away from Tsarskoie Sielo was the residence of the heir apparent, Prince Paul, who in 1777 received the estate as a birthday gift from his mother, and with his wife was busy building and arranging his place of abode. Christened originally as the "Pavlovsk Village," the estate has gradually grown into a town which now bears the name of Pavlovsk. The first two houses—no longer existing—were constructed by some unknown architects, and judging from the reproduction of them in some old pictures, were not remarkable in their architecture. This, apparently, was the reason why the Empress decided to "lend" her favourite architect, Cameron, to the Princess, who practically directed the work. In the winter of 1779 Cameron designed a plan for laying out a park in which several decorative buildings were to be erected. Amongst these were "The Temple of Friendship," "The Colonnade," "The Aviary," and many other pavilions constituting the

be known by the name of "The Temple of Apollo." Its magnificent proportions and the firm outlines, not copied from some text-book but actually felt in the stone, raise this garden and exclusively decorative construction to the level of serious and grand architecture.

Of other works in the park M. Grabar mentions "The Aviary," beautiful and dainty in spite of the heaviness of its Doric columns, and the "Pavilion of the Three Graces," built according to the designs of Cameron by his former assistant Schreter. This fairy pavilion derives its name from the statue of the "Three Graces," a copy by Tricorni of Canova's famous group, which is placed in the centre of the building.

After the park Cameron was next commissioned to build in the Pavlovsk village a great Palace. The Prince and his wife were at that time abroad, and the designs had to travel to and fro several times, so that different alterations demanded by the Prince, much to the dislike of Cameron, could be finally approved. Started in 1782, the Palace was ready by the summer of 1785, though not quite finished. From this time Cameron ceases to be the only director of the work, and a young architect named Brenna, his assistant and collaborator, gradually comes more and more to the front. His participation becomes



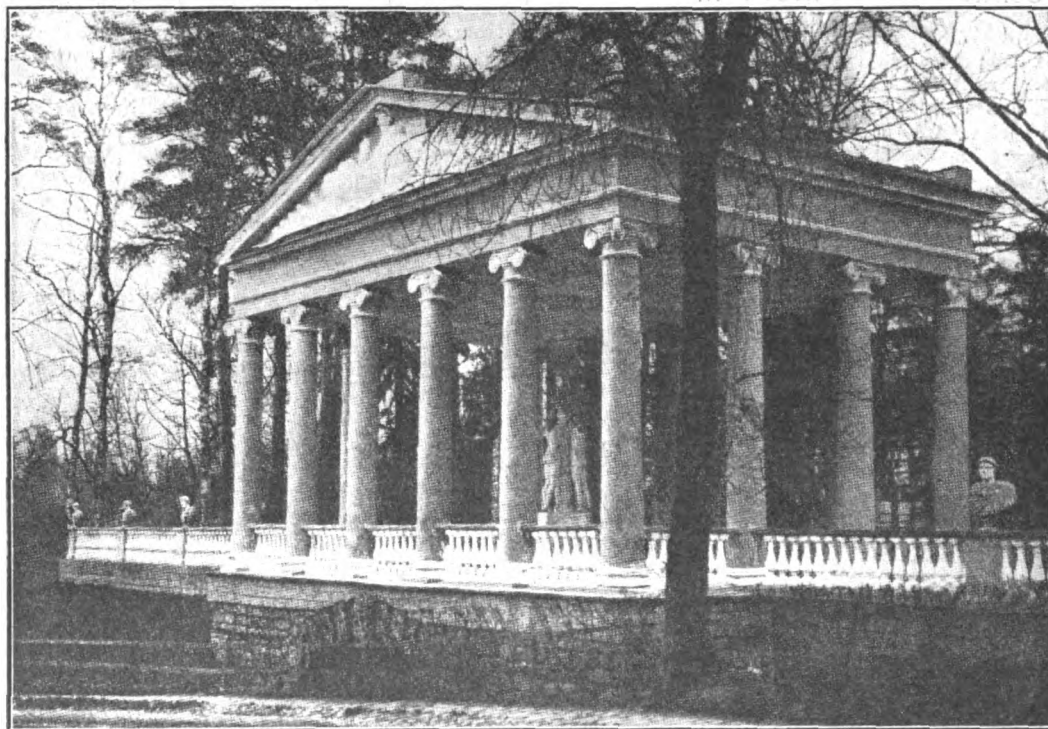
TEMPLE OF FRIENDSHIP.

necessary attributes of the gardens of that time. The following spring saw the work commenced in the Pavlovsk village, and within two years the new park was entirely transformed. Amongst alleys and winding paths sprang up fairy temples, colonnades, pavilions, &c. The first built was "The Temple of Friendship"—a charming rotunda with sixteen columns. Beautiful is the contrast between the solemn Doric fluted columns of the Parthenon type and the light, playful medallions with suspended little garlands, decorating the yellow ground of the wall. The same contrast between the severe flat walls and stern architectural masses on one hand and the light decorative finishing on the other is maintained inside the building. Hardly second to this veritable chef-d'œuvre of decorative architecture is "The Colonnade," which Cameron placed on the hill in front of the Palace. Originally it was a double ring of smooth Roman-Doric columns, carrying an imposing and massive entablature. In 1786, however, a part of this colonnade was pulled down in order to open thereby a view of its interior as seen from the windows of the new Palace, and at the same time to give an illusion of ancient ruins. In the centre of this colonnade a statue of Apollo was placed, and accordingly the whole construction came to

particularly marked in the finishing of the Palace, where the light and airy style of Cameron, the last fading echo of the graceful eighteenth century, seems to be intercepted by some foreign forms and ideas. In 1786 and 1787 Brenna became the head architect and Cameron retired to Tsarskoie Sielo.

Meanwhile the Palace is being subjected to incessant alterations; the interior apartments are juggled, and on the outside all possible superstructures, wings, &c., are liberally added. At the end it became difficult to distinguish what belonged to Cameron and what to his successor. "A comparison of authentic creations of Cameron with the Pavlovsk apartments, confronting his designs with those of Brenna, and finally precise statements of constructive documents preserved in the archives lead us to the conviction"—we quote here M. Grabar—"that, in the whole group of buildings of the great Palace, to Cameron's authorship must be attributed only the general scheme of the plan, the exterior architecture of the centre building, and the two inner halls. All the rest was built anew or altered by Brenna, while some parts were reconstructed again after Brenna's departure from Russia, when the middle building was entirely devastated by a terrible fire."

B



PAVILION OF THE THREE GRACES.

The Palace built by Cameron consisted of the present centre block, presenting in the plan a quadrangle, nearly square and of two small wings, connected with the main building by low semi-circular galleries. In the archives of the Pavlovsk Municipality there is still preserved a design of the Palace, relating most probably to 1780-82, when the wings were not yet reconstructed and the galleries were mere open columnar passages from the central building to the wings. In its crescents of columns this design reminds one of some of the villas by Palladio, the type which at one time was also very popular with the Moscow school of Kazakov and his disciples. Brenna widened the low galleries of Cameron and put on them another storey. Besides this, he considerably enlarged the side wings, built over them two more storeys, constructed a new church wing, and to these big buildings added two curved wings, which nearly enclosed the Palace yard. The principal façade of Cameron's Palace faces this latter. Of its three storeys the ground floor is treated as a plinth, and the two upper ones are connected by the colonnade of the portico. The columns are spaced in twos and stand close to the wall. The wide dome, owing to the numerous thin little columns that surround it, seems very light and expressly emphasises its wooden construction. The back façade of the Palace is different from the principal one, and appears less successful. Its portico looks wider than that in the yard, owing to a different spacing of the columns, of which the middle two are not doubled, and its entablature is too low for a building of such size and height.

Of the interior apartments M. Grabar ascribes to Cameron only two: the "Italian" and the "Greek" halls. The "Italian Hall" is situated right in the centre of the Palace, and its walls make in the section a correct circle. Four semi-circular and four flat niches are cut in the walls, and of the flat niches two are taken by doors. In the second row eight arches correspond to the bottom niches, having caryatides bearing the frieze on the supports. The panelled dome is divided into the same number of parts, the vertical divisions being ornamented with fruit in relief, and ascending above the caryatides to the centre of the dome, while the base is decorated over the arches with firmly and conventionally modelled eagles. The intense pink-purple tone of the artificial marble that covers the walls strengthens the solemn impression produced by this serious and noble architecture, whilst its top light, gliding over the shining surface of the marble, fills the place with an all-pervading calm. The "Greek Hall" is the largest and most pompous hall in the principal building. In spite of the seeming sternness of this almost temple-like composition and the frigidity of the green artificial marble of the columns, there reigns in this hall the pleasing spirit of the eighteenth century,

and there can be little doubt that all this light and exquisite relief ornamentation belongs to the hand of Cameron. There are some little pieces in other apartments which can be attributed to Cameron, but by far the greater part of the Palace bears unmistakable signs of the work of Brenna.

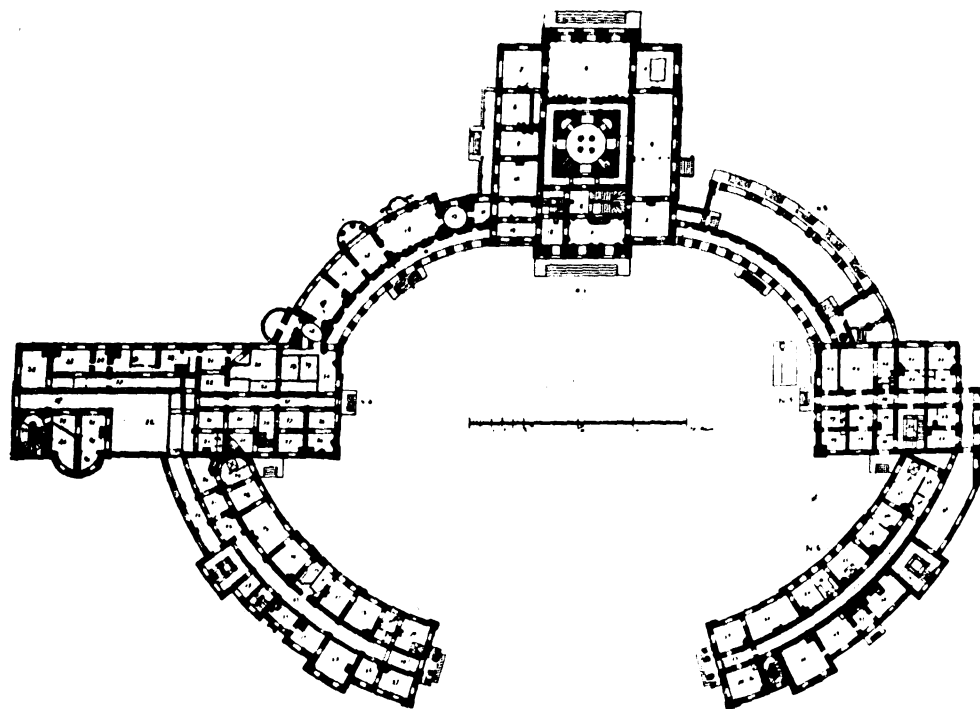
Soon after the arrival of Cameron in Russia, Catherine commissioned him to make a design of a small church for the new town, Sophia, that she had founded near Tsarskoie Sielo (now a part of the latter). Impressed by the brilliant victories over the Turks, the Empress was then cherishing an idea of recreating Byzantium and raising the cross on the dome of Sta. Sophia, and the new town she was building was a tribute to this spirit. In 1780 Cameron's design was ready, and under his supervision a model of it was constructed. The Empress, however, considered the project too grand, and Cameron had to make a new design, which he actually carried out in the still existing five-domed church.

Cameron's first design is now kept in the Imperial Public Library in St. Petersburg. It shows that Cameron endeavoured to solve the problem in the "Eastern" and "exotic" style, having composed something resembling a mosque. The church actually built appears on the other hand to be quite classical, and now it seems difficult to understand how it could have been considered at its time as almost a faithful copy of Sta. Sophia.

In connection with the building of this church one interesting episode is disclosed in the biography of Cameron. The model of his first design was placed for safety in the Academy of Arts. Cameron took the opportunity to ask the Academy to grant him the title of Academician, but his request was not satisfied.

As an architect of great fame Cameron undoubtedly must have constructed numerous private buildings, but no data which can be relied upon are at present available to settle this point. There are possibly many beautiful houses in different parts of Russia which only time will, if ever, finally attribute to Cameron. At present only one private building, the palace of Count Rasoumovsky at Batourin, in the Government of Tchernigov, can be ascribed to his genius. Till quite recently the palace, now attributed to Cameron, was generally believed to be the work of another great architect of the period—Quarenghi. Only during the publication of M. Grabar's "History of Art" were the old designs of the palace, signed by Cameron, found in the archives of Prince Repnin, and thus the name of the actual builder is proved beyond dispute.

Count Rasoumovsky, one of the great personages of the reign of Catherine II., was a Viceroy of Little Russia, and in his residence at Batourin spared no money on palatial buildings. Even towards the end of his life he did not lose any of his old enthusiasm, and was as much interested in the



GROUND FLOOR PLAN OF PAVLOSK PALACE.

construction of his new palace as in his younger days when Rinaldi was building for him his first palace. Unfortunately, the old Viceroy died in 1803 before the palace was finished, and with his death all the work was stopped. The great creation has been preserved to our time in a state of ruin, and even as such produces an impression of unrivalled beauty. At present it is placed under the supervision of the Society for Protecting Monuments of the Russian Past, which decided to preserve it in its present state.

With the death of Catherine in December 1796, the position of Cameron underwent a sudden change. Emperor Paul, actuated by his hatred of his mother, was bent upon reversing nearly everything she had done. Catherine's favourite collaborators were dismissed, and new men were put in their places. In the same way, on December 31, 1796, Cameron was dismissed "by reason of his non-utility." The house in Tsarskoie Sielo, presented to him by Catherine, and in which he had lived since 1780, was taken from him by the Treasury, and he was also deprived of the six pupils who were always under his guidance. In three years, however, Paul changed his mind, and in June 1800 Cameron was suddenly restored to favour, and enlisted in the Tsar's private department. His position was not on its former level until two years later, and he was only allowed three pupils. With the accession to the throne of Alexander I. Cameron was appointed Chief Architect to the Admiralty. It was decided that he should construct some great buildings at Cronstadt, but for some unknown reason they were not accomplished. His name is met in the records of the Admiralty up to 1811, but the only important work of this period, the Admiralty building at St. Petersburg, was carried out by Zakharov, and not by Cameron. What he did during his tenure of office is therefore wrapped in mystery. In 1811 he apparently left Russia for England, from which point all trace of him is lost. When in 1820 the great Palace at Tsarskoie Sielo was destroyed by fire the apartments used by Catherine could not be restored without the architect's designs, and this caused the Russian Government to make inquiries in London. It was found that Cameron had already passed away, but in 1822 the Russian Ambassador, Count Liven, succeeded in acquiring from his heirs some of his designs and drawings to the number of 114 sheets, which were subsequently brought to Tsarskoie Sielo. Their present resting-place is unknown.

Such is the record of Cameron's life and work as given by M. Igor Grabar. There can be little doubt that the high esteem in which Cameron is held in Russia finds sufficient justification in the excellent achievements of this Scottish master. Within the present decade falls the centenary of his death, the exact date being unknown, and it is satisfying to know that this country is now able to accord an unreserved recognition to her highly endowed son. After all, it is not only the tribute of recognition that England has now to

pay. The country in which the traditions of Classical architecture were so highly maintained, and which, no doubt, greatly influenced the work of Cameron, can justly claim her share in the brilliant accomplishments and fame of her gifted son.

[We are indebted to Messrs. Grossman & Knebel, of Moscow, for permission to reproduce the illustrations of Cameron's work.—Ed.]

THE SCHOOL OF THE FUTURE: ITS LIGHTING, HEATING, AND VENTILATION.*

By SEPTIMUS WARWICK, F.R.I.B.A., and
AUSTEN HALL, F.R.I.B.A.

IT is a very expensive matter to remedy blunders concerning illumination, heating, and ventilation after a school has been built and fitted up. This is especially true in regard to daylight illumination, it may be noted; for one cannot easily take a building up and turn it round so as to utilise the sunlight to better advantage. We are all, in these days, paying increasing attention to preventive medicine.

In these matters there is obvious necessity for close co-operation between the architects who have to plan the buildings, the medical officers who are responsible for the health of those who will occupy them, and the committees and teachers who are responsible for the success of the work carried on therein.

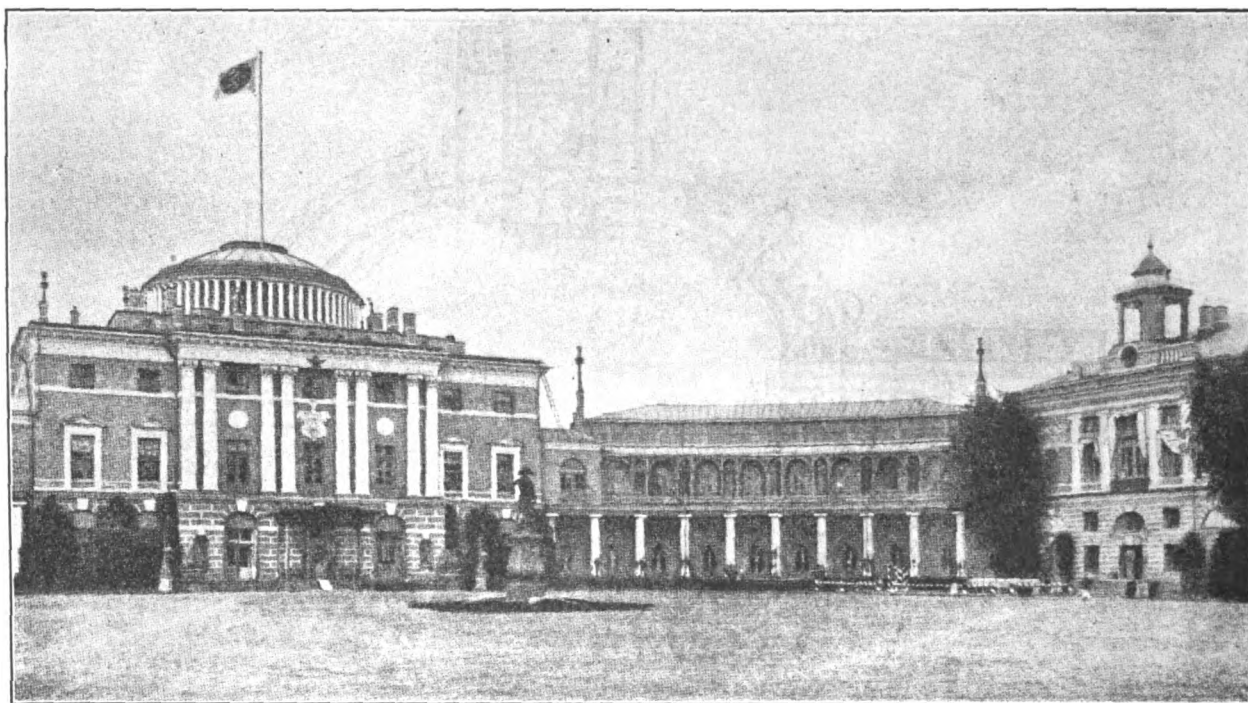
The old idea that the architect's business was to plan buildings without reference to those who had afterwards to live in them, should be, if it is not, quite exploded.

There is another body with which the architect is now able to consult in these and similar matters, and that is the Illuminating Engineering Society, which promises to be a most useful consultative body, and is doing valuable work in calling attention to the greater need for the application of scientific principles to the illumination of our homes, schools, factories, and other premises.

The impossibility of dealing with our subject in all its aspects being obvious, we propose only to treat of one or two broad principles of illumination, heating, and ventilation; and then to point out briefly in what way gas can assist in the practical and economical application of these principles where a supply of gas is available and the authorities decide upon its use.

The acutely controversial questions as between gas and its rivals we propose to leave to the protagonists in the various camps to fight out for the benefit of the consuming public. We will not quote the old proverb as to the disagreement between thieves, but in milder language point out the

* Abstract of a Paper read at the Conference of Educationists at the National Gas Congress and Exhibition on Saturday, October 11.



ENTRANCE FRONT OF PAVLOSK PALACE

advantage to the public of competition between those who have in their hands the supply of public necessities.

Our dealing with gas in this paper must not be interpreted as necessarily committing us to an advocacy of its use in every circumstance and case. There is a place for all the various rival illuminants in the service of the community, and we are only concerned here with considering how gas can best be utilised as light and fuel where it is adopted for those purposes.

At the same time, as members of a profession keenly interested in the preservation of buildings from defilement and destruction, we should like to express our appreciation of the value to the community of the steady purification of the atmosphere that is accruing through the increased use of gas for fuel, and to welcome the great improvement in the design of gas fires in recent years, which makes it possible for a self-respecting architect to recommend the installation of gas fires in the most æsthetic surroundings.

Lighting.

What are the points to which special attention needs to be given when the artificial lighting of a school is under consideration?

First of all, we take it that it is necessary to ensure that the lighting is adequate but not excessive, and that the sources of light are placed so as to secure a maximum of effective result with a minimum of cost, with an absence of glare, and with a very careful avoidance both of inconvenient shadows, and exposure of the eye of teacher or scholar to direct rays of intense light.

Here it may be well to call attention to the great importance, from the point of view of eyesight, of the comparative intrinsic brilliancy of different sources of light. There is a general consensus of opinion that intensely bright rays of light falling upon the retina of the eye set up great local excitement of the nerves of the eye and produce serious eye-strain; and that it is in proportion to the relation which the power of the light produced bears to the area of the surface from which it is produced. The effect upon the eye has been described, not inaptly, as a "whip-lash" effect.

This trouble is intensified if the sources of light are hung (as they all too frequently are) in the direct line of vision of the scholars, as, for example, when bare lights are found to be hung so as to fall within the vision of the scholars when looking at the blackboard. This not only damages the sight, but considerably reduces the value of the illumination provided. Professor Ashe, in the *Electrical World* for February 25, 1909, stated that an unshaded 16 c.p. carbon filament electric lamp in the line of vision decreased by 30 per cent. one's ability to read by a given amount of light.

It is, therefore, of great importance that sources of light should not be fixed so as to come within the line of normal

vision of scholars when they are looking either at the teacher or at the blackboard, and that all sources of light should be so designed as to have as large a diffusing area as possible. This can easily be obtained by the use of opal, frosted, or cut-glass globes; but this, of course, tends to reduce the amount of light obtained for a given consumption of lighting energy, and the principle is found to be most generally disregarded where the more expensive illuminants are in use.

This is a point to which it is impossible for too much attention to be given if the eyesight of children is to be protected during the period of their education.

The preliminary report of the Joint Committee appointed by the Illuminating Engineering Society of England to consider "The Artificial Lighting of Schools" (see *Architect*, July 25, 1913) will be found of value by all interested in the subject.

The particular matters which we wish to emphasise are the necessity for realising the effect upon both daylight and artificial illumination of the colouring schemes adopted in the decoration of schools.

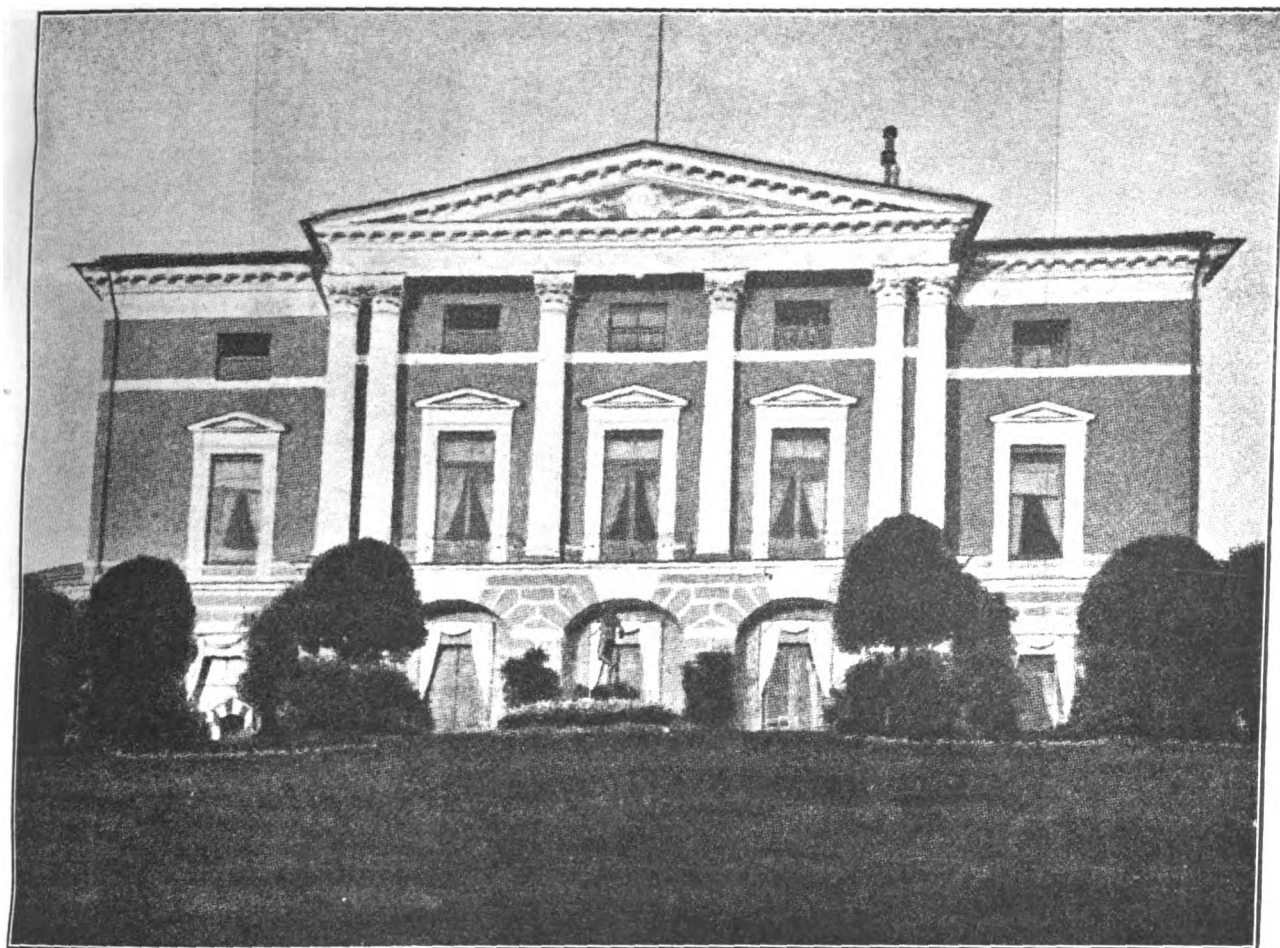
One sometimes finds classrooms painted with high and very dark dados, having an almost total absence of reflecting power; and those interested in this subject may be referred to the section in this Exhibition where will be found a number of cubicles, lined with different coloured papers, but each illuminated with a similar unit of light demonstrating the different absorptive powers of various colours upon light.

The other principal point which we wish to emphasise is the necessity for arranging the sources of light, whether natural or artificial, so that scholars do not have to sit at unnatural angles in order to avoid working in their own shadows.

We may also add a word as to the importance of seeing that the light in any room is as evenly distributed as possible, so that sufficient light is given to the students of weakest sight, and to the students placed in the farthest corners, without giving excessive light to any student.

We may be forgiven for any appearance of over-emphasis as to the importance of the illumination of our schools being both adequate and scientific, when one bears in mind the large proportion of pupils in our schools who have defective vision. Dr. James Kerr, Medical Officer to the London County Council Education Department, at the International Congress on School Hygiene held at Buffalo, New York, in August last, stated that the vision of 20 per cent. of the pupils examined by him was below normal, whilst 10 per cent. possessed only one-third of normal visual power.

Much importance is attached by some people to the method of lighting known as "indirect," whereby the



GARDEN FRONT.—PAVLOSK PALACE.

source of light is entirely obscured from vision, and the illumination of the room is obtained solely by reflection from walls and ceiling. This is an expensive method of artificial illumination, the necessity for which has not, in our opinion, been adequately established.

Semi-indirect methods of lighting are equally, if not more, satisfactory from the point of view of illumination, whilst less expensive and almost more constantly efficient because less dependent upon the cleanliness of walls and ceilings.

There is one point that needs to have attention drawn very emphatically to it, and that is that whatever the system of lighting that is adopted, and whatever the illuminant employed, "maintenance" of the lighting in a state of efficiency is most essential.

It is no use installing efficient gas burners if they are not kept periodically clean and if the mantles are not renewed until someone complains that the light is bad. It is no use installing the most up-to-date electric filament lamps if those lamps are allowed to remain in use after their efficiency has become impaired.

It is, in short, very false economy to cut down the expense of maintenance below the cost of effective upkeep, as you are then paying for gas or current, as the case may be, from which you are obtaining no light.

It is in the end far better economy to employ experts to give this matter periodical attention than to allow it to be within the province of the casual caretaker, or the handy man, the one of whom perhaps takes care most particularly not to do more work than he or she is compelled to do, while the other is more particularly "handy" upon any job than the one specially to be done.

We now want to point out the close relationship that can exist between the lighting and ventilation when gas is employed.

At one time it was common to find in every public hall gas "sun" burners in the roof, but upon the introduction of the more economical incandescent gas burner and the adoption in many cases of electricity as an illuminant, this method of combining lighting with ventilation temporarily fell into disuse, to the great disadvantage of the users of many of the buildings in which they were formerly

employed, as such burners constituted a powerful engine of useful ventilation.

Now that it has been found practicable to employ incandescent mantles in these sun burners, and now that the difficulties of maintenance have been overcome by means of satisfactory lowering arrangements, this system of at once lighting and ventilating large buildings is once more becoming popular, and deservedly so.

But this method of combining lighting and ventilation need not be confined to large college halls and buildings of similar magnitude. It can be equally well employed in much smaller rooms.

The smaller incandescent ventilating lamps have taken the place of the old luminous flame regenerative lamps which were very popular some years ago, and they can be strongly recommended for the lighting of class-rooms and similar apartments. The products of combustion pass from the ceiling into a flue which is carried either into the chimney of the room or into the open air, with proper arrangements for preventing "back draughts."

If reasonable provision is made for the intake of fresh air into a room, the use of these lamps solves the problem of ventilation very satisfactorily in dark and cold weather, and all the ingenuity of man has not yet devised any much more satisfactory system of ventilation in hot weather than an open window.

Even, however, if no special type of ventilating gas lamp is used it may be said that there is something radically wrong with the construction of a room of normal dimensions if the use of sufficient gas by modern burners to light the room adequately materially increases the temperature in that room or causes any noticeable rise in the CO₂ contents of the atmosphere.

This, which is the experience of many users of gas lighting in rooms which have normal means of ventilation, has also been established by the independent test of such men as Dr. Rideal, the eminent research chemist, and Dr. Toogood, the medical superintendent of Lewisham Infirmary. The latter authority, in an interesting report on the subject, states that his experiments proved conclusively that in both large and small apartments which have normal means of ventilation, gas consumed in modern incandescent



THE ITALIAN HALL—PAVLOSK PALACE.

burners can be used for lighting without any detriment to health, being found, in fact, to assist ventilation by the increased circulation of the air.

It is to be hoped that architects and school managers will, when employing gas for lighting, bear in mind the modern improvements in gas burners and lamps which enable it to be utilised as an active instrument of ventilation, not merely removing its own products of combustion but helping materially to remove the products of respiration of the occupants of the room, and so maintaining the vitality of those occupants at a higher level than would be maintained in an ill-ventilated building.

Passing now to the consideration of gas for heating purposes, one would first of all like to emphasise that, for the purpose of securing the best hygienic conditions in any room, radiant heat is of far greater value than convected heat, the difference between the two being that radiant heat—say that from the sun or from a glowing body such as a coal fire or gas fire—warms the objects upon which those rays fall, but does not heat the air through which they pass; whereas convected heat, such as that from hot-water pipes, radiators, &c., raises the temperature of the air and so increases its capacity for absorbing moisture from the human body. This is what produces that feeling of stuffiness and headache from which we have all suffered in rooms heated by such methods, especially if the heating has been in any way overdone, as so often happens where central heating is employed.

Now, for large schoolrooms and suchlike buildings, a system of open fires as the sole means of heating would be a costly matter, owing to the labour entailed in the use of coal on the one hand, or the cost of the gas for constant

heating on the other. But here, as in many things British, we are able to arrive at a reasonable compromise for the heating of large rooms in very cold weather.

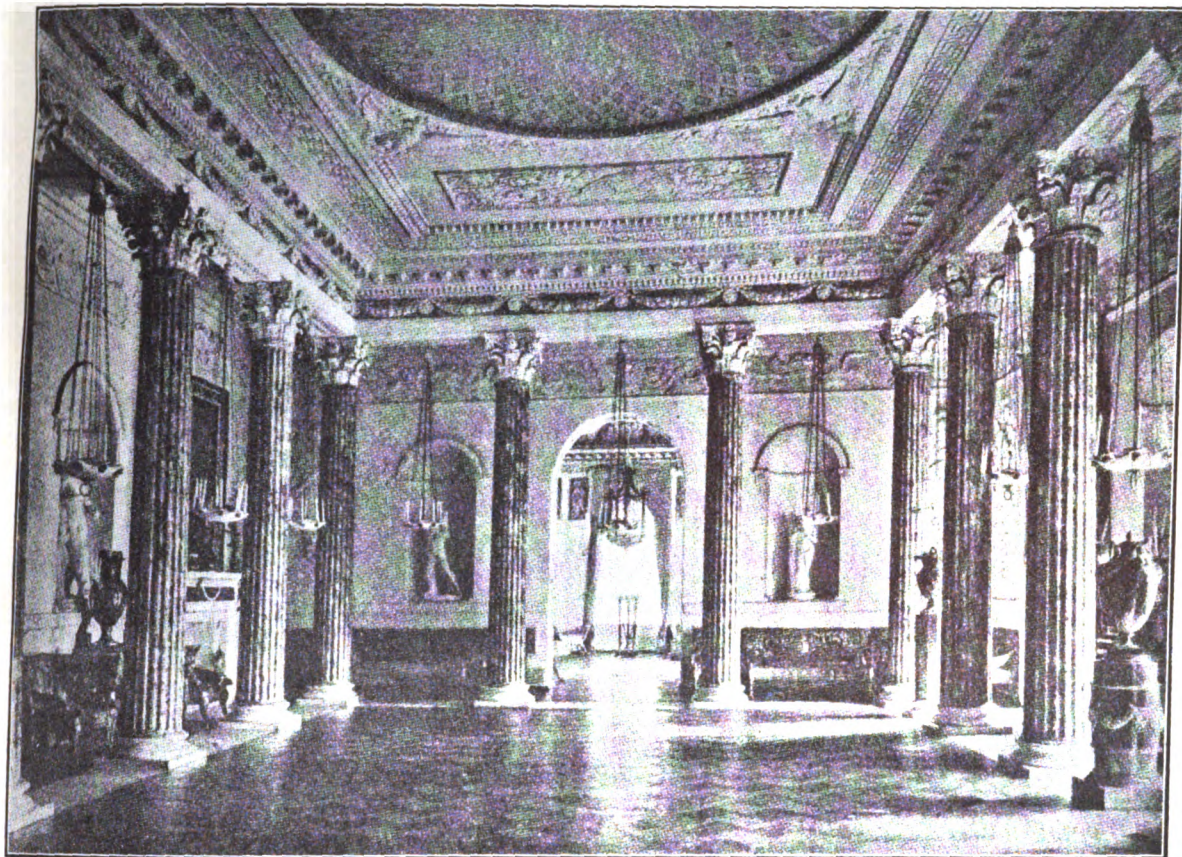
A central boiler, heating radiators to a moderate temperature throughout the building, will warm the air of the rooms without heating them to an uncomfortable degree, provided that the area of radiation allowed is not excessive, and the radiators are not permitted to become over heated.

To enable such an installation to keep a building comfortable during the most severe weather, and to take the place of such an installation during those periods of the year when warmth is only wanted spasmodically, the installation of gas fires in every room is suggested as a satisfactory complement.

It is hardly necessary to point out that one of the great advantages of gas heating over other methods in this British climate of ours (which a school-boy once defined as "not being a climate at all, only weather," and which an American designated as being "only a collection of samples") is that it can be called into service at a moment's notice.

Architects, in the planning of college quarters, must in future make provision for the laying on of a gas supply to every room, so that this cleanly method of heating can be installed at any time that the college authorities may desire it, without the disturbance to the building that is sometimes entailed in the installation of modern methods of heating in old buildings.

We must now briefly refer to the necessity for the installation of efficient gas cooking appliances in those schools where cookery is taught, as gas, thanks to the



THE GREEK HALL.—PAVLOSK PALACE.

penny-in-the-slot meter, is now becoming the almost universal fuel.

This is a matter to which the architect should give careful consideration when planning either cookery centres or kitchen quarters for schools and colleges.

Similarly, gas is a valuable servant in laundry centres and college or institution laundries, and attention may be called to the value of using gas under pressure for the purposes of big laundry work.

The value of gas as a clean and easily manipulated fuel in the laboratory scarcely needs mentioning. The steady increase in the use of gas for all classes of furnace work has been a notable feature both in the experimental laboratory and the practical workshop and factory for some years past.

Another field in which gas is becoming increasingly useful and utilised is that of the provision of hot water for all purposes, alike in the home and in educational establishments and other public institutions.

One of the finest installations for the provision of hot baths after physical exercise, of which we are aware, is that at Sandow's Institute in London, where gas is exclusively employed for the purpose at a cost of only a penny a bath, with a minimum of labour and an entire absence of any necessity for storage of fuel.

The various gas water-heating appliances placed upon the market in recent years, designed either for connection to existing circulating systems or for the provision of a direct supply of hot water, have made it possible for everyone to obtain a constant hot-water supply at a minimum of cost; and it may be mentioned that where the demand for hot water is great and constant, and labour and storage space are not serious considerations, another product of the gas works—namely, coke—can be employed with economy and satisfaction.

Coke is a cheaper fuel than gas if their respective heating powers alone be taken into account, and it is a matter for the consideration of those in charge of institutions, and for the architects who have to advise them, as to whether in any individual case coke or gas should be employed for water heating; the advantages of cleanliness, saving of labour, saving of space, and readiness for instant use being on the side of gas, with a possible economy of fuel to be set on the other side of the account in favour of coke.

This is one of those cases where generalisations are

unwise, as each case, as we have said, needs to be dealt with on its particular merits.

In concluding this already too long paper, mention may be made of one other possibility for its utilisation, and it is one that in its hygienic aspect appeals to us as important in its relation to school equipment. We refer to that of water sterilisation. It is unnecessary to emphasise the great necessity for the supply of hygienically pure water in schools, and in view of the fact that a simple and inexpensive means is available whereby large quantities of water can be readily sterilised without being distilled, we are of opinion that the time has arrived when sterilising apparatus should be seriously considered in the equipment of a modern school. The cost of such sterilisation is not a serious matter, as, at the average price of gas, about eighteen gallons can be sterilised for a penny.

THE TREATMENT OF WOODWORK IN DECORATION.*

By MR. L. A. SHUFFREY.

Wood was used structurally by the Saxons, whose habitations were constructed mainly of timber, and which, there is little doubt, were ornamented with wood carving, for the northern races had a partiality to that art as exemplified in their galleys. The doorways of the wooden churches of Scandinavia and Denmark dating from the ninth to the thirteenth centuries are remarkable examples of Mediæval wood carving, designed and executed with the most perfect sense of the necessities of the material.

Norman buildings were mainly of stone, and contained very little woodwork.

In the early Gothic periods woodwork followed closely the designs of stonework which were not suitable for execution in wood—a fibrous material to which the craftsmen had not then learned to adapt their design. We know that wainscoting was used in the thirteenth century for the rooms of manor houses, Royal palaces, and chapels. As figure-subjects were frequently painted on the wall above the wainscoting, this was probably not carried up to a height of more than 5 feet or 6 feet. It probably consisted of plain slabs laid upon the wall, with, perhaps, a rail at the top and

* Abstract of a Paper read before the Institute of British Decorators at Painters' Hall, E.C., on October 10.



CHURCH OF STA. SOPHIA, TSARSKOIE SIELO.

bottom. An authority has suggested that the wood employed was Norway fir.

The stiff-lobed leaf-carving gave place to a closer imitation of natural forms. This naturalistic carving often had a stuck-on appearance, and lost the strong architectural character of the earlier work, although exhibiting greater skill of execution. A further change in style took place at the end of the fourteenth century in the direction of conventionality.

The craftsmen of those days were not content to leave the timber (oak being that in general use) in its natural condition, but decorated both roofs and screens with colour. In ecclesiastical buildings richness of effect was produced by ornamenting the structural timbers and the plaster in between with carving, gilding, and colouring; but the ceilings over the sanctuary were very frequently close-boarded to form panels, and treated more richly. The colours used on these screens and roofs are thought to have been mixed with spirits of wine and shellac, as they have retained a brilliancy unknown in oil painting.

The construction of floors in the fifteenth century received careful attention, the heavy and richly moulded timbers dividing what formed the ceiling of the room below into rectangular compartments, the dividing ribs being moulded also, but subordinated to the main beams. Carved bosses were often placed at the intersections. Wainscoting or the covering of walls with oak panelling became very general in the latter part of the fifteenth century, and still more so in that which followed. This was sometimes carried up to the ceiling, but more frequently stopped some feet lower, and it was then finished with a moulded and battlemented cornice. The effect of the linenfold panelling is rich, the vertical lines giving scale and the varied terminations interest and variety.

The period preceding the Reformation for about 100 years was a triumphant one for the art of the woodworker. Then a parish church could show a carved and decorated roof, pulpit, chancel screen with rood loft (all decorated with colour), oak choir stalls and benches, and possibly a many-pinnacled font cover reaching almost up to the roof. Wood was also used for carved effigies on tombs; these were generally covered with a thin coating of gesso or fine stucco, on which various ornaments were stamped and then decorated with gold and colour.

One style sufficed up to the time of Henry VIII. for both ecclesiastical and domestic work.

One of the earliest examples of the incoming Renaissance, as well as perhaps the most important, is the choir stalls of King's College, Cambridge. As these bear the badges of Henry VIII. and Anne Boleyn, their date may be fixed during the short period when she was his queen. Soon the forms, which during the Gothic period arose naturally out of the construction, were made subservient to a preconceived architectural composition consisting generally of column and entablature. The early Tudor

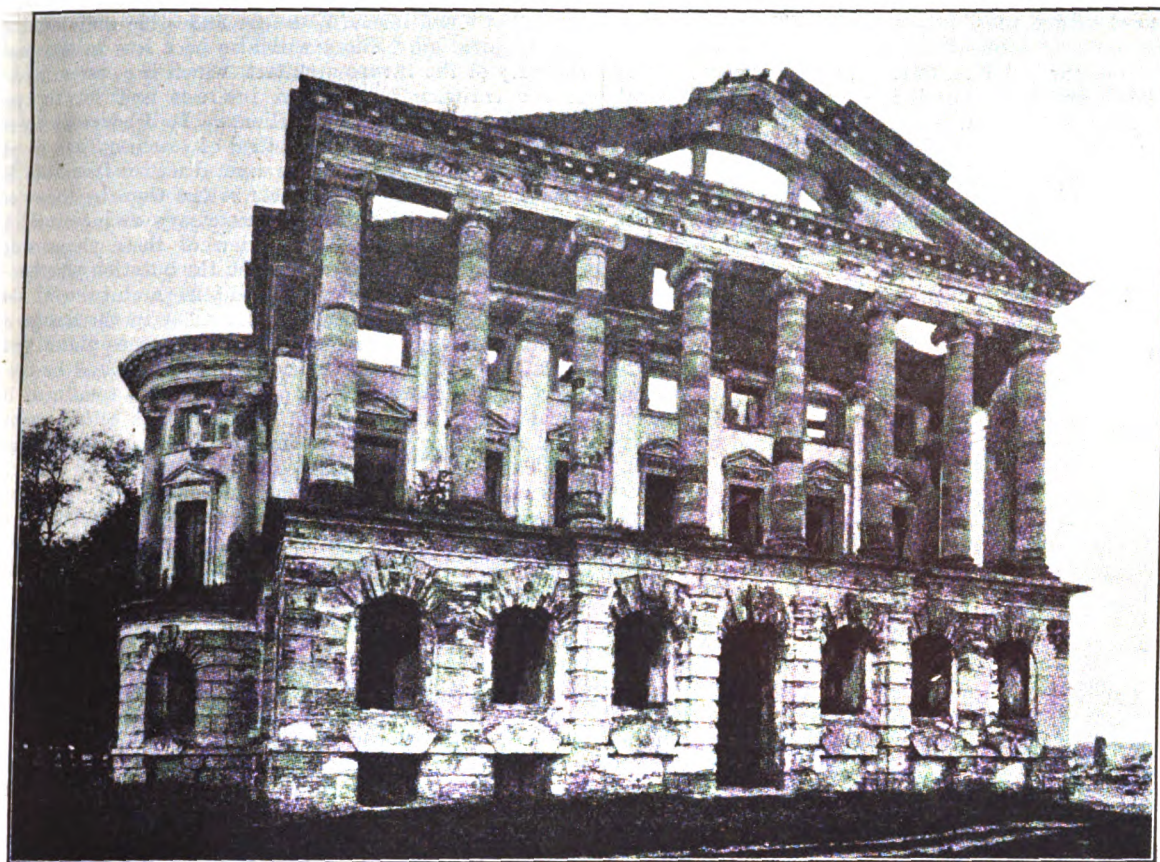
boarded ceiling with wooden ribs and carved bosses at the intersections gave place first to a ceiling of wood ribs with ornamented plaster panels and afterwards to one all plaster. The stairs, which in mediæval times had been generally of stone and often winding and inconvenient, now became broad and easy going. Solid oak posts formed the newels; these were frequently carved, and in the finest examples terminate with carved figures. Another feature which owes its development to this period is the screen in the great halls.

Inigo Jones revolutionised the design and general treatment of woodwork when he introduced a broader treatment of rooms and a closer adherence to classical models. The small panel treatment, which it is thought had been left very much to the craftsman in wood, was abandoned and the architect's design and details supplied and carried out as at the present day. A great change was effected in stairs, and here a splendid field was offered the carver.

The opportunity of that marvellously talented carver of wood, Grinling Gibbon, came as the accompaniment of Wren's successful practice. Perhaps Wren let Gibbon's skill run away with him, to the detriment of the architecture on which his work was placed, instead of making it subservient to and growing out of it. The way in which his carving detaches itself from its background is increased by the fact that it was generally executed in limewood on account of its tenacity and absence of grain. This being light in colour increases the contrast between it and the darker oak behind. That Gibbon can have executed with his own hand one-half of the work which exhibits his style is impossible. He doubtless had many able assistants. Nevertheless, his style died with him. Gibbon must have sketched from Nature hour upon hour until he absolutely knew the natural forms depicted with so much exactitude. Some slight sketches of his are preserved in the Soane Museum, but nothing of the nature of full-sized drawings.

During the latter part of the eighteenth century woodwork came under the influence of the Adam Brothers, although less regarded by them than plaster or stucco ornamentation. Their mouldings were generally smaller than those previously in use, and of Greek sections in place of Roman. Compo or wood was used largely for their enrichments, and many chimney-pieces were made in this style. Their doors and windows were well proportioned, and the joinery well executed. Good joinery became traditional, windows and window linings and shutters were well made, and this continued with some alterations in the mouldings till the middle of Queen Victoria's reign, when joinery methods were upset by the Gothic Revival.

The facility with which the work of the past is made known to us makes the study of woodwork easy, but not so the selection of a style in which to work. The variety of styles is embarrassing. It appears desirable for us to take carefully into consideration modern conditions and



RUINS OF PALACE OF PRINCE RAZOUMOVSKY.

requirements, and on these as a basis, with a sub-consciousness of the work of the past, to strive to produce work of interest and good proportion. The craft of the joiner suffers from the too great subdivision of labour in many workshops. The wood-carver is quite separated from the joiner. Over all is that curse of modern times, excessive competition.

MANCHESTER SOCIETY OF ARCHITECTS.*

In my address to you this evening I must first express my sincere appreciation of the honour you have done me in electing me as your President for a second year. The Manchester Society of Architects is one of the most important of provincial Societies, both as to the number of its members and the area of its province, and has, I believe, a record of good work second to none amongst the Allied Societies. Fortunately for its President, much of the responsibility attached to his position is relieved by the ready and effective assistance which he receives from the members of the Council and members generally. We are also most fortunate in the fact of our being in a very sound pecuniary position, thanks to the thoughtful benefaction of one of our late members. We are thus enabled to do many things which would be otherwise impossible if we were dependent on the contribution of the members only, and we are able to provide excellent premises and all the accommodation of a club, from which the members greatly benefit. We have also an excellent library, which contains a most valuable collection of books, to which the members have access, so that in all respects the Society has good reason to be proud of its position, and it behoves all of us to do what we can to promote harmony and good feeling amongst our members.

Reviewing the work done by the Society during the last session, I think we have every reason to be satisfied. We have had a series of excellent papers of an instructive and interesting character, and the Secretary is to be heartily congratulated on his success in providing lecturers of such high standing and ability. Another gratifying feature of the last session was the excellent work done in the classes of design. Personally, I was much impressed by the quality of the designs submitted and also the draughtsmanship

generally, which I do not believe has ever been equalled previously. I can only hope that this high standard and enthusiasm will be maintained in the coming session.

As your representative on the Council of the R.I.B.A. I have taken much interest in the work affecting the profession generally. I have been struck by the enormous amount of work which is done and the businesslike way in which the affairs of the Institute are conducted. I have found the greatest consideration paid to the opinions of the representatives of the various allied societies and an earnest wish to consider the interests of the provincial members of the Institute. I feel that it is only fair I should state this, as I have so often seen complaints of neglect of the provinces and suggestions of an over-riding metropolitan influence.

Many very important questions affecting the welfare of the profession have been under discussion during the last session, including that most difficult problem—namely, the proposed Registration Bill. As a member of the committee I can speak of the strenuous efforts which have been made to prepare a Bill which would be in the best interests of the profession and be accepted by Parliament. A draft Bill has now been completed, in spite of little encouragement from counsel and others who have been consulted as to its chances of becoming law. We are advised that in the present condition of Parliamentary affairs a Bill of this nature is not at all likely to be successful. In the face of these difficulties many of the Council feel that we had better rely on our powers under the existing Royal Charter, which powers are recognised by the Courts, and, it is thought, are sufficient for our purposes. Personally, I am inclined to take this view; nor do I see that the profession would really gain much by an Act of Parliament. The object of acquiring an Act is primarily for the prevention of unqualified men from practising as architects, but, on the other hand, an Act of Parliament would mean giving authority and position to many unqualified men who have at present no recognition as qualified architects. The medical profession have an Act of Parliament for their protection against unqualified practitioners, but they are by no means free from quacks and patent-medicine vendors, who continue to flourish. The R.I.B.A. is probably the best means for our government and its by-laws and regulations will sufficiently uphold the best interests of the profession. I have dwelt rather long on this matter of registration, as I feel it to be one of absorbing interest to

* Presidential address by Mr. John Brooke, F.R.I.B.A., delivered on October 8.

our profession, and I am anxious that the present position should be as clearly as possible understood. The preparation of a revised scale of professional charges has also occupied the attention of the R.I.B.A. during the last session. It is now completed, and as soon as it is approved by the general body of members will be put into force.

As a member of the R.I.B.A. Council I was invited with other members to inspect the work which is being done at St. Paul's Cathedral, with a view to securing the safety of the structure owing to the serious settlements which have taken place. In company with the cathedral architect, Mr. Macartney, and Sir Francis Fox, the engineer specialist (who is in charge of the work), a very thorough examination of a large portion of the building was made, and the nature of the damage which has occurred was pointed out, together with the methods which are being adopted to remedy the defects. The source of the danger is supposed to be the bed of quicksand which occurs in the subsoil at a depth of about 20 feet below the foundations, and there is documentary evidence to show that about fifty years ago this running sand was tapped during the construction of a deep sewer in close proximity to the cathedral, thus causing the settlements which have occurred. The question is whether this sewer is not permanently extracting the sand, and causing further settlement. Apart from the question of the existence of this quicksand, it was discovered that the construction of the walls was very defective. The main piers supporting the dome are composed chiefly of loose stone rubble, with a thin outside casing of bedded masonry, averaging about 9 inches thick, which casing was practically carrying the whole of the enormous weight of the superstructure of the dome, a total of some 7,000 tons, carried on eight piers about 30 feet by 8 feet respectively. With a view to strengthening these piers liquid cement grout has been forced at a high pressure through the cracks and through holes cut in the outer casing of the masonry into the rubble filling, with the object of converting the whole pier into a monolith or homogeneous block. Examination of portions of the work which had been completed showed most satisfactory results, and I fully believe will result in the removal of all danger of collapse. The time at my disposal this evening is too limited to enter more fully into the details of this most interesting examination, in which I feel it is a great privilege to have taken part. The result of the examination was to remove my anxiety as to the future safety of the structure and to thoroughly approve of the methods which are being carried out with such great care and thoroughness, and it is to be hoped that funds will be forthcoming to complete this most necessary work and remove all danger in the future.

Having given an account of my stewardship, I will now refer to more general matters affecting the welfare of the profession. The battle of the styles has ceased for the present, and the Goth has surrendered to the Greek and Roman forces, and Classic architecture holds the field. Some of us will remember the time immediately succeeding the previous reign of the Classic style, born of the Dilettante Society's labours, and followed by the beautiful and scholarly productions of Professor Cockerell, Sydney Smirke, and their compeers. Through the influence of Ruskin this most interesting period in Classic architecture terminated, and gave way to a Gothic revival which swept like an epidemic through the country, infecting everyone. Both the clergy and laity were moved to enthusiastic, not to say feverish, activity. Nearly all the cathedrals and churches in the country were placed in the hands of Gothic experts to restore or rebuild. Alas! unfortunately, in most cases, to destroy and ruthlessly remove the poetry and tradition which the original builders and time had bequeathed, leaving in their place lifeless productions of the unsympathetic hardness which belongs to cast-iron. Beautiful stained glass was removed for meretricious substitutes, and very much of what was best was swept in the Gothic flood. Oh! the pity of it. To say nothing of the waste of money, which might have been spent to so much better purpose. The Gothic treatment was applied to all sorts of buildings for which it was quite unsuited. No wonder that a reaction took place and that Classic architecture has once more successfully asserted its claims and has gradually but surely taken a firm hold in present-day design.

In the last decade drastic changes have taken place in the methods of architectural teaching, and the old system of pupilage has largely given place to the academic. It is to be hoped the result will be satisfactory, but there is no doubt there is loss as well as gain in the change. The danger of academic education is the individual and dominating

influence of the teacher, which is calculated to produce a stereotyped similarity of design and stifle individual effort and inspiration. There will also be a loss in the business capacity of the future architect, which is so essential a part of his training in his own interests and for the proper protection of those of his clients. It behoves us therefore to see that this academic method of teaching shall be placed in the most capable hands and directed from the Royal Institute of British Architects rather than by those educational bodies which lack the necessary architectural knowledge and experience. In view of these changes in the methods of teaching, I would ask the question whether satisfactory progress is being made in architectural design? There has, I think, been improvement in the design of our public buildings in recent years, both as to planning and a greater breadth and simplicity of outline, and in the omission of unnecessary features; the better treatment of the wall spaces, and the effect of contrast is better understood, and there is a greater absence of meretricious ornament.

The use of iron and concrete construction has changed the character of our commercial buildings, and a skeleton framework of steel has now become almost a universal method of construction in our business premises, warehouses, and factories. No doubt there are many facilities in this mode of construction, which had its origin in America, and it has enabled buildings to be erected of a much greater height than formerly, and also to economise floor space and the area of the site. Perhaps the greatest improvement in design is to be found in small houses for the use of the middle classes, as seen in what are called "garden cities" and in the suburbs of large towns. It is quite a new development, and has taken the place of the old semi-detached villa, on which it is, needless to say, a great improvement. It has provided the opportunity for much originality of treatment, and the results are as a whole highly satisfactory. There is much yet to be done in the provision of dwellings for this very numerous portion of the community. The increasing difficulties found in domestic service points to residential flats with a co-operative service, and I expect to see in the near future considerable development of the residential flat system. With respect to the dwellings for workmen little real progress has been made owing to the question of cost as compared with the rents which can be paid. These difficulties have been seriously increased by recent legislation, which has for the time being checked the career of the speculative builder, who in time past has provided this class of house. The dearth of suitable dwellings for the working classes is becoming very serious in many districts, and something will have to be done, either by Parliament or the local authorities, to supply the want in the absence of private enterprise.

As regards the architectural development of our towns and cities, efforts to improve them are sadly hampered by narrow views which resist all attempts at broad treatment. I fear in city improvements the narrow and patchwork methods generally prevail, but these narrow views are by no means synonymous with true economy and are a great bar to progress. Locally we suffer seriously from these causes, and the opportunities for the improvement of our city are thrown away.

The position of the individual architect has much changed in the last few years, and he is beset with difficulties that a few years ago did not exist. The specialist has trespassed upon his domain, and the enterprising and advertising furnisher and decorator no longer hesitates to usurp the position of the architect, and to provide plans "free of cost," which a credulous public have been taught to believe. The protective authority of the architect has been gradually but surely undermined.

I would again sound a note of warning against being too ready to take part in the lottery of public competitions. The public have discovered our weakness in this respect, and are exploiting the profession for their own benefit. The only kind of competition which is reasonably fair is the limited competition in which all who take part are paid their out-of-pocket expenses at least. As an illustration of the effect of this species of gambling, I would refer to the recent bankruptcy of an able architect who attributed the cause of his insolvency to having taken part in the last six or seven years in more than fifty public competitions. He had been placed first in four, but in only one or two cases had he been allowed to carry out his design, "owing to the action of the committee concerned being in favour of local men." In granting his discharge the judge commented on the unremunerative character of competition work as

follows:—"He knew that competitions were about the most expensive form of business an architect could indulge in, because even if he were at the top it did not follow that he would get the contract, for there were so many influences at work." I trust this warning will not be thrown away, and that we shall spend our time more profitably than by gambling in public competitions.

Finally, I would impress upon assistants and the younger members of our profession, who are called upon to spend many hours in the close atmosphere of an office, the necessity for preserving their bodily health. Open-air exercise must not be neglected, and I would strongly recommend the cultivation of outdoor sketching, which will combine the necessary exercise and fresh air with mental improvement. The old motto "Mens sana in corpore sano" is for ever true, and health once lost is not easily regained.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.

THE opening monthly meeting of the new session in connection with the Sheffield Society of Architects and Surveyors was held at Sheffield University on October 8. A good deal of interest was displayed in an exhibition of drawings executed by students in the Department of Architecture and other student members, in preparation for the Royal Institute of British Architects' examinations.

The President (Mr. A. F. Watson, F.R.I.B.A.), in the course of his address, referred to the loss the Society and the city generally had sustained through the deaths of Mr. W. H. Lancashire and Mr. J. D. Webster. The Society had now a total membership of 117, including lay members and honorary members. Referring to the education of the younger members, the President said the present rising generation, no doubt, had many more attractions than was the case in the young days of their older professional brethren to tempt them to shirk giving up their half-holidays and the long-lighted evenings to sketching. Let them remember, however, that it was a grand thing to be well enough up in their profession to be fully competent to design and carry out an important edifice when the opportunity occurred for them to be entrusted with such a work.

The Town Planning Act was now in force in Sheffield, and he hoped good would come of it. Much care was required in its administration, however, or great loss and hardship would fall on owners of property, and loss would be entailed to the city generally.

The new building by-laws for the city had at last been approved by the Corporation, after years of consideration, but already difficulties had arisen in connection with their administration, and some of the clauses were already under consideration with a view to their amendment.

"I often think," said Mr. Watson, "that if many officials would pay more attention to the defective materials used in the construction of buildings more good would be done to the community at large than by hampering work which clients intend executing in the best manner and the most modern type of construction possible, and of which some of our so-called inspectors have little or no knowledge. Whether it is possible to frame by-laws which are simpler or less onerous than those of the Local Government Board it is difficult to say, but they are at present far too drastic."

The long-looked-for widening of Exchange Street as a better approach to the markets and the Great Central Station was about to commence, and when completed would be a vast improvement; but he could not help thinking the City Council were losing sight of a very necessary requirement which would have to be provided in the future, and he referred to the means of approach to the eastern parts of the city, there being now only two thoroughfares by which traffic could pass from the centre of the city to Tinsley, Brightside, Pitsmoor, or Handsworth districts. It seemed a pity that the making of another main street was not considered in connection with the widening of Exchange Street and Waingate. If the present opportunity of providing it was not taken advantage of it would be a very costly matter when, in the future, it had to be done.

With regard to the Finance Act, which had played such havoc with the building trade, it remained to be seen what the Chancellor of the Exchequer was going to do to lift the burden from the builders' backs, the incidence of which Mr. Lloyd George had hitherto so persistently denied.

The Land Duties Act continued to give the greatest annoyance to owners and agents, and many failed to see what good would come of it, for no matter what value was put on

land, if there were no buyers—which was too frequently the case at present—the assessed value would not help anyone but the army of officials who no doubt had often a very difficult task to perform.

A vote of thanks was accorded the President for his address.

THE GAS INDUSTRY IN ITS RELATION TO SMOKE ABATEMENT.*

By VIVIAN B. LEWES, F.I.C., F.C.S.

BEFORE attempting to discuss the important part which the gas companies are playing in reducing the smoke plague, which was the great blot on England's sanitary reputation in the nineteenth century, I should like to show, rather more fully than is usually done, the true nature of smoke and the causes that lead to its formation.

Paper, wood, and coal represent the combustible factors in starting the domestic fire, and when once well alight then coal alone becomes the fuel.

Both paper and wood have, as their combustible basis, cellulose, whilst bituminous coal contains carbon and degradation products of cellulose luted together by resins and hydrocarbons; and in all three the ash, which represents the mineral constituents largely derived from the sap, is the only portion that plays no part in combustion.

If we analyse a sample of dry wood and one of a bituminous coal, such as is employed usually as a household fuel, we obtain the following results for the main constituents:—

	Dry Wood.	Domestic Coal.
Carbon	48	86
Hydrogen	6	5
Oxygen	46	9

And the composition of paper, when ash is deducted, will not differ materially from that of the dry wood.

We know from experience the wide difference that exists between the smoke from wood and from coal: the one consists chiefly of steam, with small quantities of creosotic and acetic vapours and fine particles of ash, the other of soot, heavy tar vapour, steam, sulphur compounds, and ash.

No finer illustration of the effect of the two fuels on the air of a large city could be adduced than the atmosphere existing in Paris and London between 1880 and 1890.

Up to 1890 the amount of coal burnt in Paris was negligible; wood was the universal fuel, and the atmospheric conditions were well nigh perfect. Since then coal has commenced to play an important part as a domestic fuel, and the consequent deterioration of the condition of the air is perfectly noticeable.

In London up to 1890 neither wood nor gas in any way interfered with the use of bituminous coal, and the condition of the air was a national disgrace.

A glance at the composition of the two fuels makes the cause of this clear: in the wood we have not much more than half the carbon that is present in the coal, whilst there is five times as much oxygen.

With coal the carbon is high and the oxygen low, a fact that makes the calorific value of coal nearly double that of wood, but at the same time leads to all the troubles against which we are fighting in smoke abatement.

When using a bituminous coal in the domestic grate there are three distinct phases in the burning of the fire. In the first, coal has just been fed on to the fire, and the result is a maximum of distillation and a minimum of combustion, and it is during this period that the most deleterious constituents of the smoke are formed, and a very large proportion of the heat units in the coal are lost, owing to the amount taken up in decomposing the coal and converting the volatile portions into vapours and gases. During this period the coal, heated by the fire from below and comparatively cool above, distils off tar vapours, coal gas, and steam in proportions which vary with the temperature. In the early stages, the surface of the fuel being too cool to lead to their ignition, these products escape as vapours up the chimney, mingled with anything from 8 to 30 000 cubic feet of air per hour, according to the draught in the chimney.

During this period of smoke production no soot is formed. The physical properties of the cloud of vapour provide an interesting study, as it explains one of the secrets of the lasting power of smoke, and the way in which it acts. A most beautiful and instructive experiment shows to perfect

* Abstract of a Paper read on October 9 before the Coal Smoke Abatement Conference at the National Gas Exhibition, Shepherd's Bush, W.

MODERN EUROPEAN ARCHITECTURE.
FRANCE.[From *La Construction Moderne*.]PREMISES OF THE TEXTILE INDUSTRIES ASSOCIATION, RUES MONTESQUIEU ET DES BON ENFANTS, PARIS.
M. GASTON ERNEST, Architect.

tion the structure of smoke as it escapes from a burning object. A puff of smoke blown through a small glass cell, illuminated from below by oxy-hydrogen or arc light, reveals the fact that it consists of minute vesicles which are in a marvellous condition of motion, and which will remain floating in the stream of air or gas until impact with a solid surface causes a bursting of the little liquid envelope, forming a microscopic drop of tar on the solid against which it has struck, and liberating the contained gases. This ends the first phase in the actions taking place.

After a period, which varies according to the amount of

coal which has been fed on to the fire, sufficient heat finds its way to the top of the fuel to ignite some of the escaping vapours, and the bright illuminating flame is then formed above the surface of the fire. This flame radiating a considerable amount of heat, owing to the incandescent particles within it, the waste ceases to be as great as before, but a large amount of vapour will be noticed to be escaping still unburnt, owing to some of the hydrocarbons being so diluted with steam and the coal air sucked in over the surface of the fire as to stop their combustion.

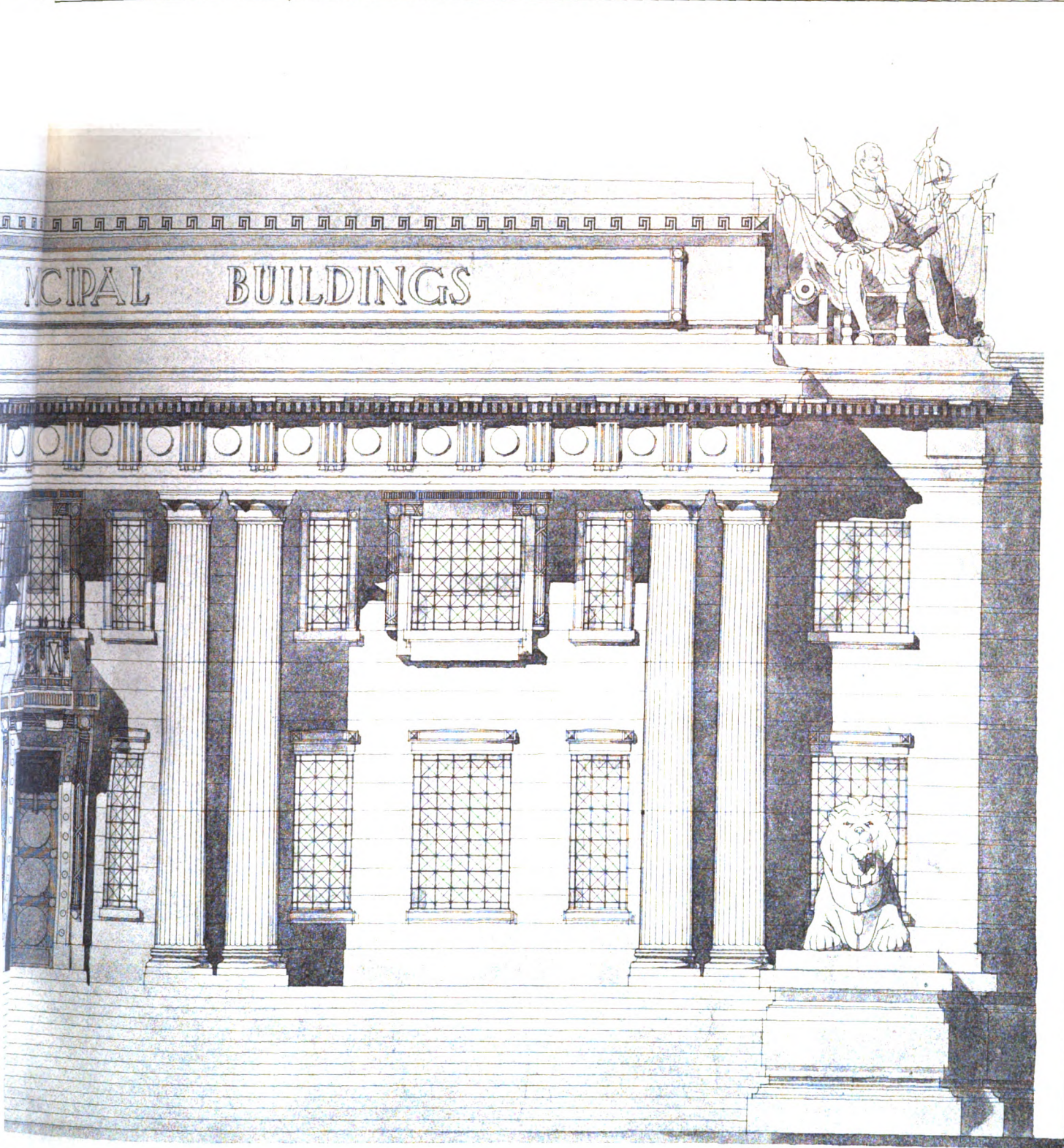
If the flames themselves be watched it will be seen that



DETAIL OF PRINCIPAL

COMPETITION DESIGN FOR MUNICIPAL BUILDING
By Messrs. KEYS & DUNN

Oct 17th 1913

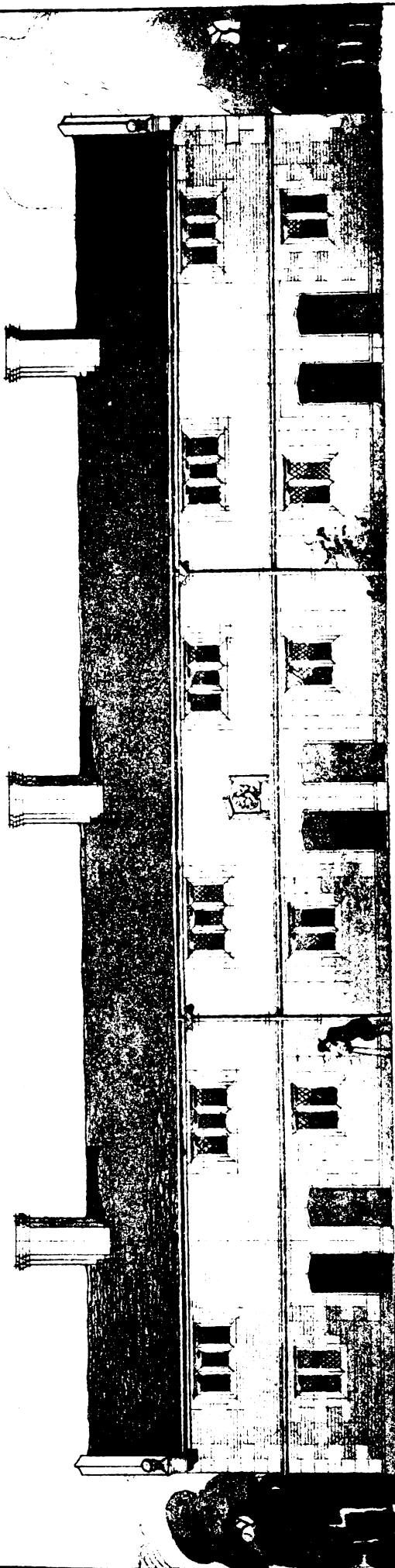


MUNICIPAL FACADE .

10 30 40 FEET

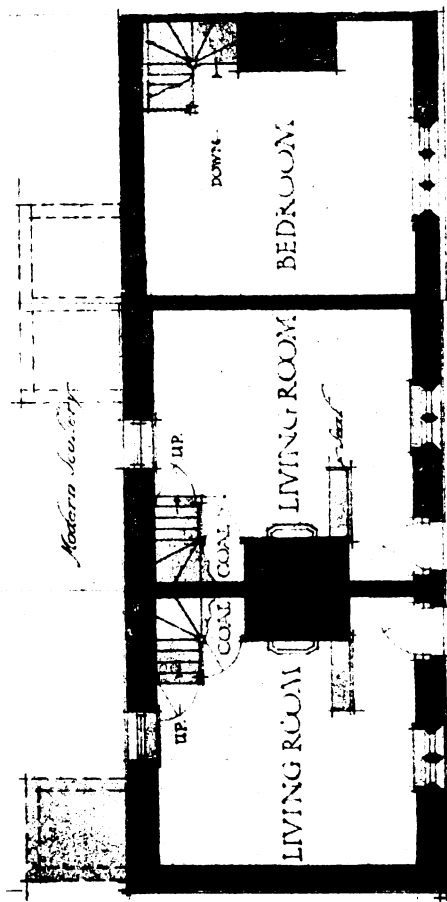
"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

MUNICIPAL BUILDINGS, DEVONPORT.
WODESWELL, A.A.R.I.B.A.



DATE 1638

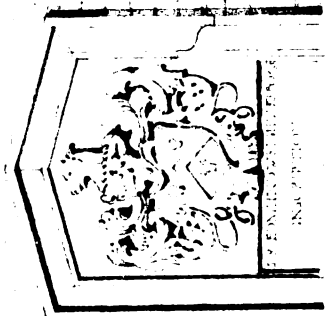
FRONT ELEVATION
33'-0"



GROUND FLOOR

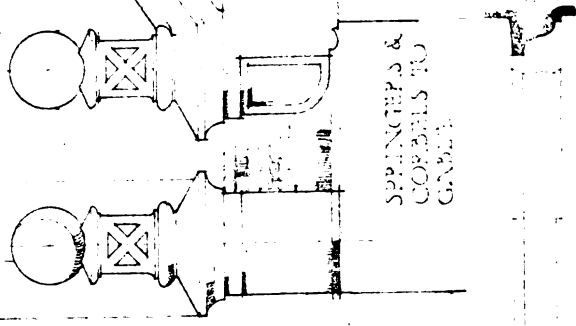
SCALE OF 1" = 10' FEET

THE EDMUND
WRIGHT ALMSHOUSES
NANTWICH



STONE PANEL IN CENTRE

DETAILS TO ONE
INCH SCALE



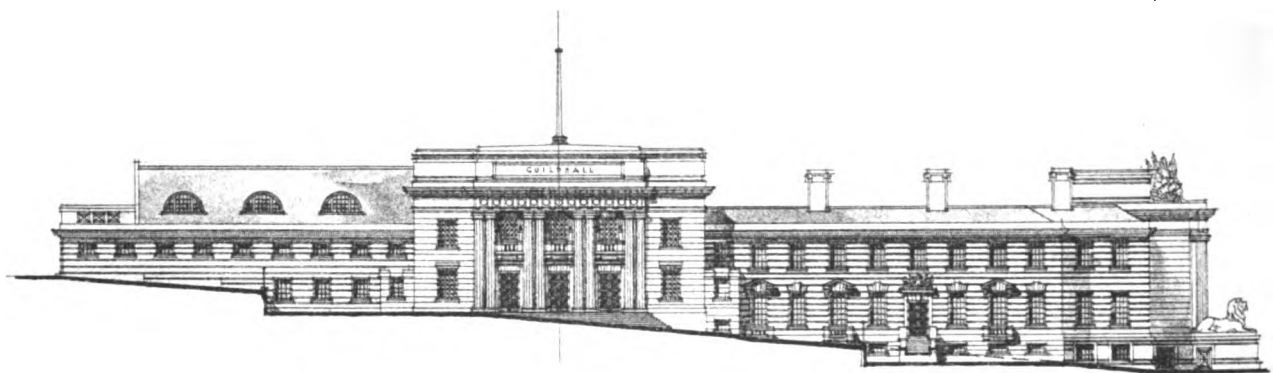
INK PHOTO SPRINGUE & CO LTD 89 & 90, DEAN STREET, SOHO, W.

MEASURED AND DRAWN BY MR J. M. CLARKE.

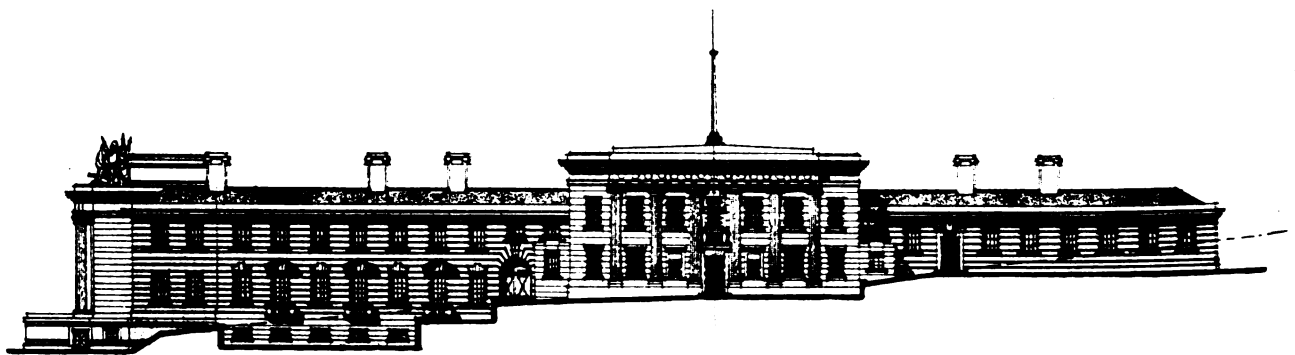
SCALE OF FEET



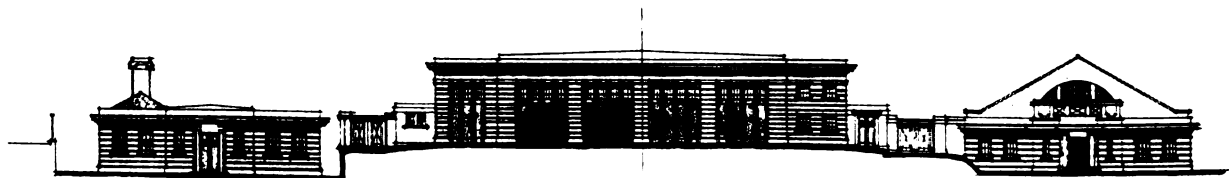
ELEVATION TO PARADISE STREET



S.W. ELEVATION



N.E. ELEVATION

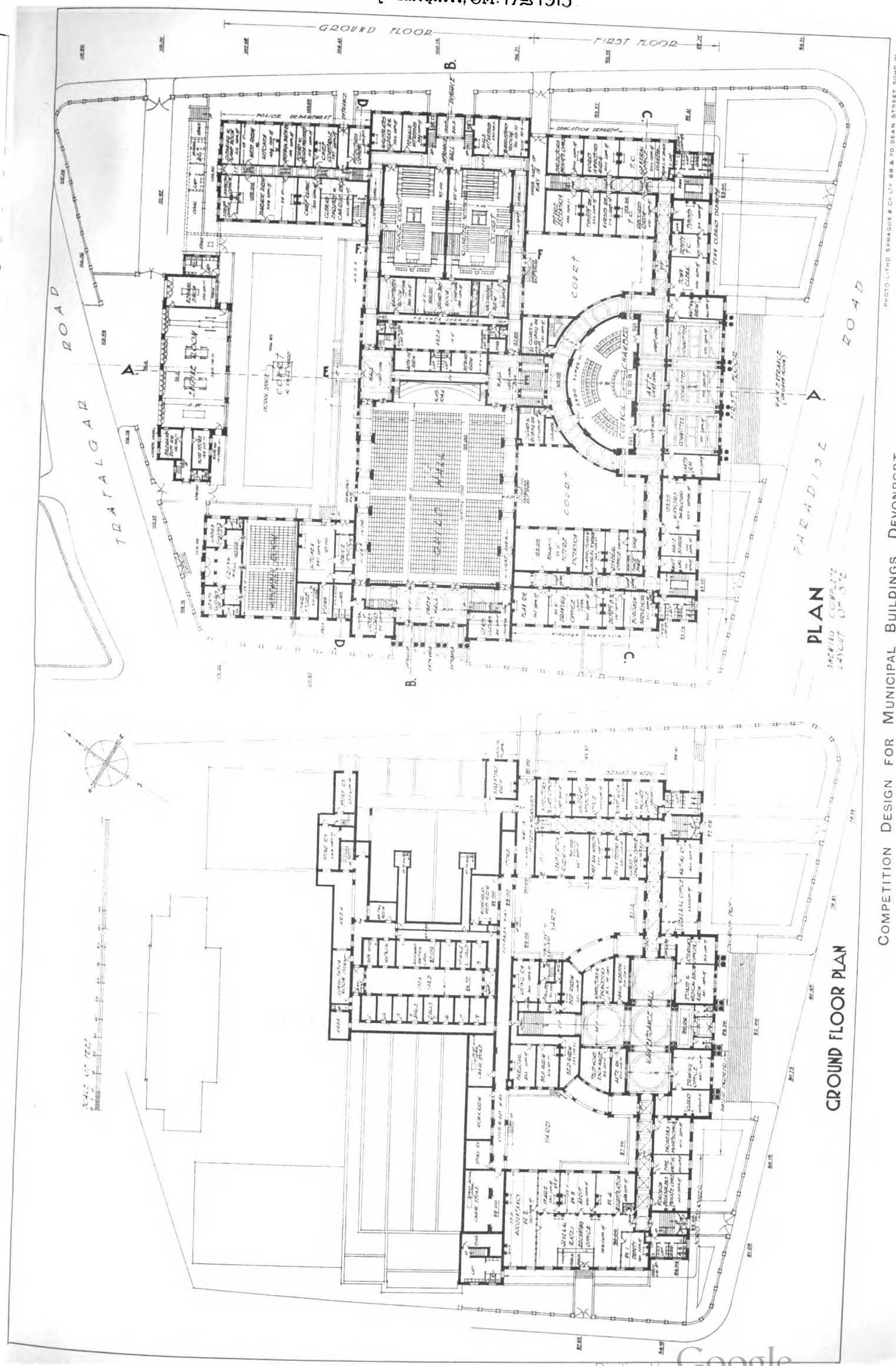


TRAFALGAR RD ELEVATION

COMPETITION DESIGN FOR MUNICIPAL BUILDINGS, DEVONPORT.

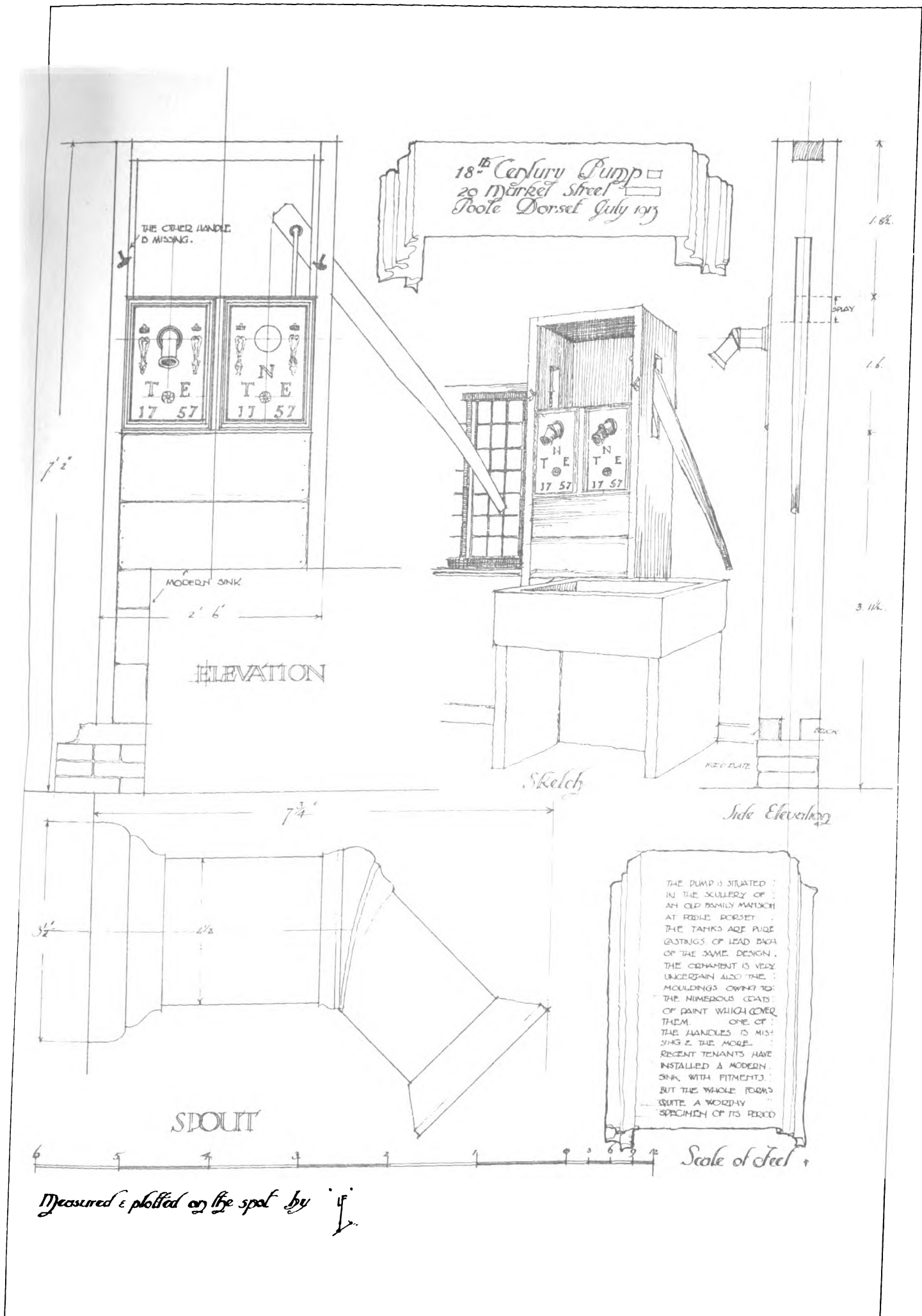
By Messrs. KEYS & DOWDESWELL, A.A.R.I.B.A.

"INK-PHOTO" SPRAGUE & CO. LTD 68 & 70, DEAN STREET, BOMBAY, W.

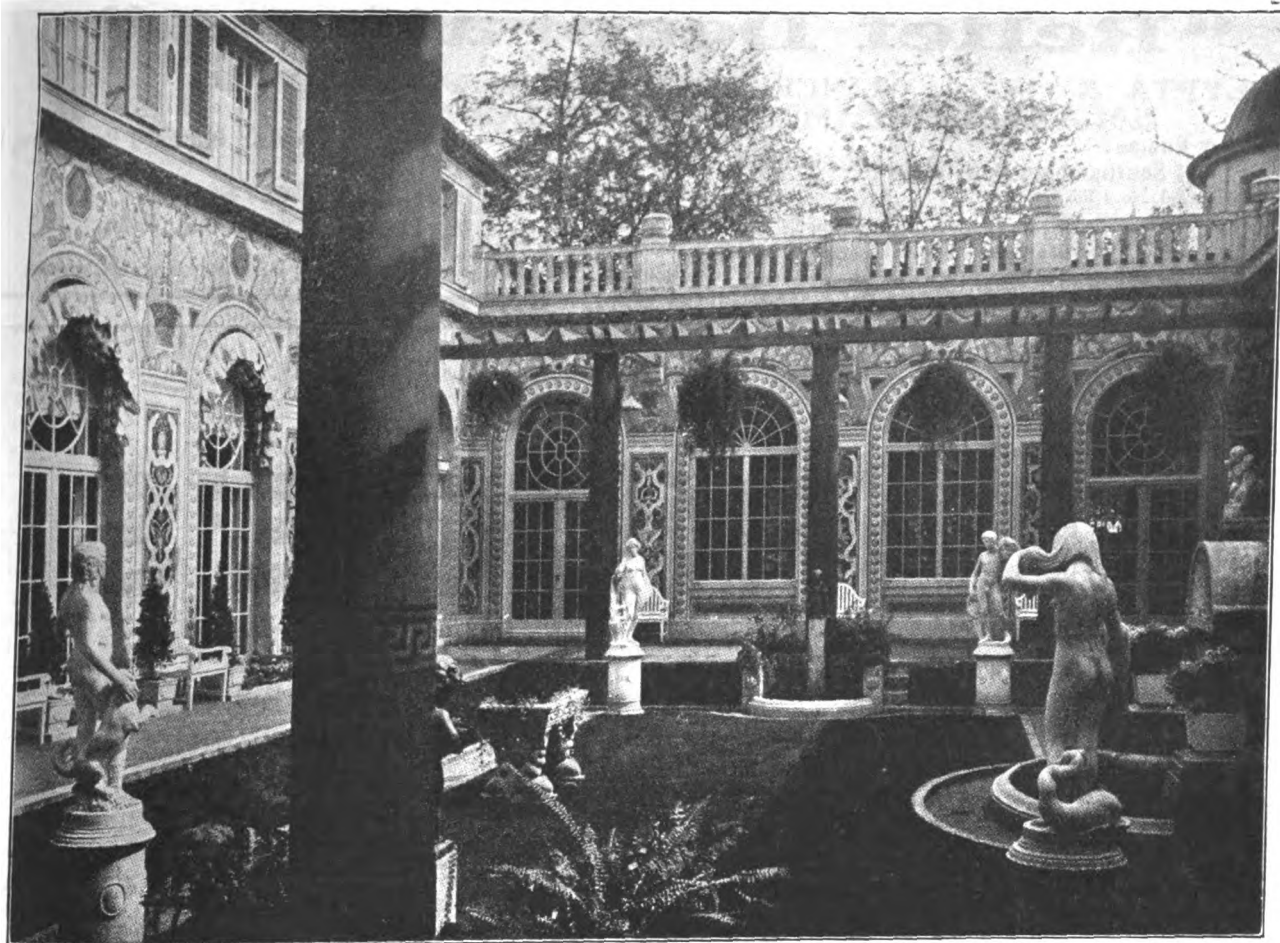


COMPETITION DESIGN FOR MUNICIPAL BUILDINGS, DEVONPORT.
By Messrs. KEYS & DOWDESWELL, A.A.R.I.B.A.

PHOTO LITHO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.



MODERN EUROPEAN ARCHITECTURE.
GERMANY.



NEW PUBLIC BUILDINGS AT BAD KISSINGEN.—AN INTERNAL COURT.—Professor MAX LITTMANN, Architect. [From *Deutsche Bauzeitung*.]

they become red and lurid towards the top, and are emitting particles of carbon. It is during this period of combustion that soot is deposited in the chimney and appears in quantity in the smoke, which now consists of tar vapour, soot, water vapour, products of combustion, and excess of air, together with the residual nitrogen from that portion of the air which has been used in the combustion, and also particles of ash sucked up by the draught in the chimney, the period during which this is going on being the second phase. As time passes on the fire burns clear, the amount of flame becoming extremely small, consisting chiefly of burning carbon monoxide, and practically smokeless combustion is attained. This constitutes the third phase, and very shortly after the fire needs replenishing with coal, and the various actions start anew.

Let us try and see how far the actions taking place in the fire affect the amount of calorific value of the coal that is transferred to the room. A pound of coal of the composition we have been considering has a thermal value that may be expressed as 14,000 British thermal units. When it is burnt in the open fire it is practically only the radiant heat that is utilised, and measurements of the temperatures of the escaping products, heat imparted to the room and remaining in the ashes, &c., taken in conjunction with the heat value of the actions taking place and the heat lost in the combustible matter escaping unburnt, give us the following balance-sheet:—

	British Thermal Units.	
Heat used in decomposition and volatilisation...	1,450	} Lost 21 per cent.
Heat escaping in the flue gases ...	6,000	
Heat lost in unburnt matter escaping up chimney ...	3,610	
Heat in ashes and grate ...	265	
Radiant heat imparted to room ...	2,675	} Used 19 per cent.

So that in round figures only one-fifth of the heat value of the coal is utilised.

This means that of the 35,000,000 tons of coal annually used as domestic fuel in this country, the heat actually utilised in warming our rooms represents only the heat value of 7,000,000 tons, the remainder being wasted in the flue gases and in producing the mixture of tar vapour, steam, soot, and ash that fouls our town atmospheres.

When coal of the same class undergoes destructive distillation at the gasworks, coal gas, tar, ammonia liquor, and coke are the result. We know the coke and the coal gas both are easily burnt without smoke—the former because it contains no volatile hydrocarbons, the latter because the volatile hydrocarbons are of so simple a character that its smokeless combustion is obtained easily by any decent form of atmospheric burner, and it is clear that it must be the liquid products that are the culprits in smoke formation.

In the smoke as produced by the domestic fire the general tendency has been to consider the solid carbonaceous matter, greasy with some of the condensed hydrocarbons of the tar and spoken of as soot, as the chief cause of the evil brought about by the smoke scourge, but although it has been proved by statisticians that the soot fall in London alone amounts to 76,000 tons per annum, the damage that it does is small as compared with the tar vapour.

Soot settles readily from the air, and is washed down quickly by rain and better still by snow, so that although its dirtying action is great it does not do the amount of harm that is brought about by the cloud of floating vesicles of tar containing flue gases and vapours that enable them to survive until such time as rough impact with solid substances causes them to burst: it is the tar that glues the dirt to our buildings and stops the pores of animal and plant life, that causes the overhead cloud which cuts off the sun's rays and shortens the hours of vitalising sunshine: it is the tar that coats the particles of water in a white mist and transforms it into a yellow fog that lasts until heavy rain or wind clears it away: it is tar that gives what we term the cumulative effect of smoke, which darkened the closing years of the last century.

Many have been the attempts to burn bituminous coals under conditions that would prevent the formation of the agglomeration known as smoke, and the failures have equalled them in number. Under-fed stoves, in which the coal was fed to the bottom of the incandescent mass of fuel instead of on to the top, gave the greatest promise of success, as during the distillation phase the products were mostly decomposed in the hot fuel, but, although re-invented

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No. : 165 Darwen.

London Tel. No. : 2731 Gerrard.

Telegrams { "Anaglypta, London."

Telegrams { "Anaglypta, Darwen."

LINCRUSTA-WALTON. & CAMEOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No. : 8769 Gerrard.

Telegrams : "Lincrusta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No. : 422 East.

Telegrams : "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSSEL

ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

CLARIDGE'S PATENT ASPHALTE CO., Ltd.

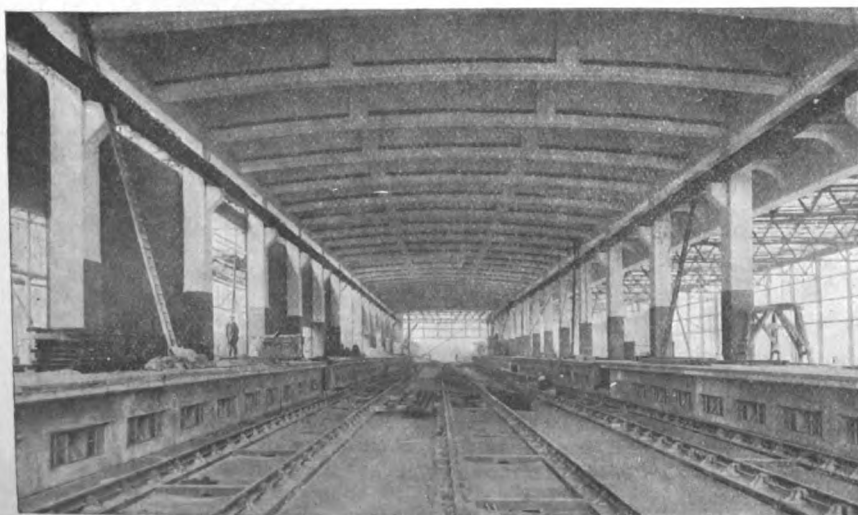
21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

KINNEAR PATENT STEEL ROLLING SHUTTERS



GREAT WESTERN RAILWAY—LAMBETH GOODS DEPOT.
Fitted throughout its length with Shutters, 19 ft. high by 23 ft. 9 in. wide.

are adapted to the requirements of all classes of buildings.

They are **FIREPROOF**,
Easily operated,
Simple in construction,
Durable in use,
And in every way efficient.

Thousands of these shutters are in use in all parts of the world.

Arthur L. Gibson & Co.,

Radnor Works,
Strawberry Vale,
TWICKENHAM.

MANCHESTER:
33 Arcade Chambers
St. Mary's Gate,

GLASGOW:
79 West Regent Street.

LTD.

4, Bow, L

many times since Arnott first gave the idea, the initial cost of their installation and certain imperfections in their working have led always to eventual failure, and there is not the least doubt that if smoke is to be abolished it can be done only by abandoning the use of bituminous coal.

The fact that our gas-works supply two forms of fuel that are smokeless at once suggests that here we have ready to hand the means of supplanting a thoroughly unsuitable fuel and replacing it by others which not only give an enormously enhanced efficiency in the work required of them, but would solve the problem we all have at heart. Slowly but surely the gas fire is replacing the coal grate, and approximately one-sixth of the coal fires in London have been replaced by gas, with the result that the registers show a gain of eighty-four hours per annum in sunshine, and the yellow London fog has been improved out of knowledge and much more resembles a country mist.

What, then, is it that prevents the gas industry from completing the work they have begun so successfully? What are the barriers that must be swept away before the community at large can enjoy the inestimable boon of a clean atmosphere? The chief factors are the interests of the coal retailers, prejudice on the part of consumers, and last, but not least, that the gas industry has not yet realised the importance to them of becoming the sole suppliers of domestic fuel. The coal industry is keenly alive to the position: experiments are proceeding in a dozen different directions to secure methods of making a solid smokeless fuel to take the place of coal, as the inroads that the use of gas as a fuel has made on the amount of coal consumed already are being felt by the retail trade, and the moment they can put a good smokeless fuel on the market without the aid of the gas companies in getting rid of the gas they will do so, and one of the greatest chances the gas industry ever had of an enormous advance will be lost.

The prejudice still existing amongst a certain number of consumers against gas fires and the hundred and one operations to which coal gas as a fuel is pre-eminently adapted had its inception in faults in the earlier forms of apparatus, and to the principles which must be applied in using gas for domestic purposes not being thoroughly understood.

The early forms of geysers and water heaters were made with the flame of the atmospheric burners impinging on the coils in which the water to be heated was circulating, and, oblivious of the fact that the checked combustion of the flame must give rise to carbon monoxide and other poisonous products, were fitted in bathrooms without flues to the apparatus or even proper ventilation to the room, the fatal accidents which resulted naturally giving rise to grave mistrust.

Now that the cause of these troubles is realised a gas-heated water supply to a house is recognised to be one of the most important factors in comfort.

In the same way the older forms of gas stove that gave only some 30 per cent. of the heat value of the gas as radiant heat, and relied for its heating efficiency on a hot-air chamber, which gave a large amount of convected heat, so raised the temperature of the air as to render it unhealthy for breathing, whilst the hot air so increased the rate of evaporation from the inmates as to give severe physical discomfort.

Now the gas stove heats the room in the best possible way: 50 per cent. of the heat given off is radiant heat, which warms the solids in the room and prevents chill, whilst about 12 per cent. of the heat is convected, and that from surfaces which are not overheated, with the result that the air is kept at a comfortable and healthy temperature that allows the normal body functions to proceed naturally, and no discomfort arises.

If we take a balance-sheet for the heat utilised by the gas fire and compare it with the coal fire, the results we obtain are:—

	Coal Per Cent.	Gas Per Cent.
Lost		
Flue gas losses...	43	38
Unburnt gases and vapours...	26	Nil
Decompositions and volatilisation...	10	Nil
Heat in ashes and grate...	2	Nil
Used		
Radiant heat...	19	50
Convected heat...	Nil	12

Whilst I am assured that the newest developments in the gas stove, and which is one of those to be seen in the Exhibition, give no less than 71 per cent. of the heat of the gas as radiant heat.

The coal trade try to impress upon consumers the fact that gas is more expensive than coal for continuous heat-

ing, and found their statement on a pound of coal containing 14,000 B.Th.U., so that in buying a ton of coal for 25s. you obtain 31,360,000 B.Th.U., whilst with gas at 2s. 6d. a thousand you would obtain only one-sixth that amount: only one-fifth, however, of the heat units in the coal are utilised in the domestic grate, and the enormously higher efficiency of the gas stove reduces the difference in cost between coal and gas to a point at which the economies obtained by the use of gas far outweigh the slight extra expense.

The coal is delivered into the cellar, and handling, waste, cost of laying fires, trouble of attending to them, dirt, and grate cleaning are all factors which make gas the cheaper fuel in the long run, whilst the fact of being able to turn the gas on when needed and off when done with, the perfect command of the temperature, the quiet burning and absence of necessity for constant attention, extra safety and even heating, all give gas as a fuel an overwhelming advantage: and now that it is proved to be as hygienic for this purpose as the coal fire its advance in popularity will be rapid, and this is shown by the fact that any rise in the price of coal is reflected in the number of gas stoves fitted, and the last coal strike resulted in 80,000 gas stoves and cookers being installed in London during the following nine months.

It is clear, therefore, that prejudice is practically a thing of the past, and the question that arises in one's mind is, Why should not the gas fire displace the coal grate entirely? The reason why any such advance would be an impossibility is that for gas to be a universal fuel its price must be kept down, but the increasing cost of coal and the labour conditions at present existing render this difficult and further lowering in price almost impossible to hope for, unless some alteration in the method of carbonisation is adopted. The limits of economical gas production are being rapidly approached, and to increase largely the output of gas and to give any chance of reduction in price a *pro rata* market must be made for the other products of destructive distillation. The liquid by-products will look after themselves: you might treble the output of tar and liquor, and under existing conditions there would be an ever-improving market for them.

It is the coke that is the trouble; not hard enough for metallurgical or even generator work, and too hard and impure for a domestic fuel. Gas-works coke as at present made falls between the two stools.

It never was and never will be a popular domestic fuel, as it is difficult to ignite, and for that reason gives a dull fire: a dull fire in turn means a poor chimney draught, and any failure in this respect means that the high sulphur content of the coke gives a smell in the room. Mix it with one-third its weight of coal, however, and it gives an excellent fuel, as the coal gives easy ignition and free burning, whilst the flame ensures a good chimney draught. Such a mixture, however, is not perfectly smokeless, although a great advance on coal alone, and the fact that cellar space is needed to make the blend is against it in these days of flat dwellings.

Already over-production of gas coke is beginning to hamper some works, and what is really wanted to solve the smoke problem is that the gas companies should remember that they are also coke companies, and supplement the magnificent work they are doing already by adopting some more elastic systems of carbonisation, so that by chamber carbonisation they might make a true hard coke for metallurgical work and power generators, so increasing the local market in that direction, whilst at the same time adopting low-temperature carbonisation to fill the domestic market with a soft coke containing 8 per cent. of volatile matter, using the small volume of rich gas, after stripping for the production of motor spirit, with the poorer gas from the chambers. Some such method of working would increase profits from the enhanced value of coke and liquid products, and I am convinced that it is on these lines that the gas companies will solve the great question of the purification of our town air.

SIR T. JACKSON, R.A., and Sir F. Fox state in their report on the proposed restoration of Ashbourne Church that it is a matter of surprise that the church has stood so long in its seriously crippled condition. An appeal for further support has been issued, as the estimates for the satisfactory completion of the work considerably exceed the £5,000 originally asked for.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

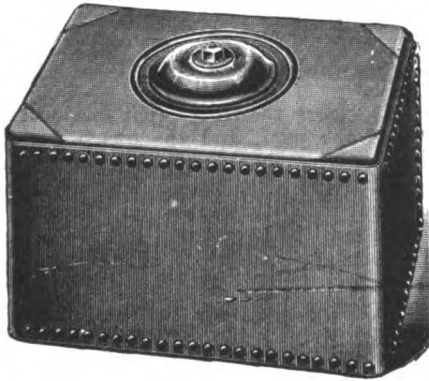
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



**IRON KECS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**



Section of Sankey's
"Perfect" Draught Pot.

Down-Draught

This sectional illustration shows the simple interior construction of our Chimney Pot.

The pot is easily kept clean, as the sweep's brush passes right through the pot, and there are no small openings to clog with soot.

Full particulars on application.

J. H. Sankey & Son, Ltd.

Head Office:

Essex Wharf, CANNING TOWN, London, E.

A LIST OF ART PLATES published in "THE ARCHITECT" will be forwarded on application to Gilbert Wood & Co., Ltd., Imperial Buildings, Ludgate Circus, E.C.

Orr's Zinc White Limited

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.**

ZINC SULPHIDE WHITE (Original Patentees).

PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.**A LIST OF WORKS PROJECTED OR COMMENCED.**

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.**BERKSHIRE.**

Newbury.—District Hospital: two special wards (£600).

BUCKINGHAMSHIRE.

Amersham.—Warehouse, for Mr. H. Kennard.

Chalfont St. Peter.—House, Roughwood Road, for Mr. W. Hewitt.

Chartridge.—Bungalow, Pednor, for Mr. C. Boswell.

Great Missenden.—House, Martin's Lane. Messrs. H. & A. Wright, builders, High Street.

CAMBRIDGESHIRE.

Cambridge.—Ley's School: college buildings. Sir Aston Webb, C.B., F.S.A., architect, 19 Queen Anne's Gate, London, S.W.

CORNWALL.

Guinear.—Trenawyn Farm buildings. Mr. S. Hill, architect, Green Lane, Redruth.

Redruth.—P.M. Sunday School, Redruth Highway.

St. Anthony.—Signal Station: additions and alterations. Mr. W. E. Bennett, contractor, Flora Terrace, Bodmin (£553).

St. Just.—Four Council cottages, St. Just Lane, for Truro R.D.C.

St. Mawes.—Bungalow. Mr. Bennett, contractor (as above). £655.

DEVON.

Dawlish.—Knowle Estate: adaptation as public offices, fire station, &c. (£600).

Exeter.—Three blocks of cottage flats and twenty-three cottages, Exeter Nursery (£5,900); and Twelve cottages, Blackboy Road (£2,450). Council surveyor.

Torquay.—Theatre, for Mr. J. M. Glover (of Plymouth). £20,000 to £30,000.

DURHAM.

Darlington.—St. Luke's Church. Messrs. Clark & Moscrop, F.F.R.I.B.A., architects, Feethams.

Dragon Vile.—"George and Dragon" Inn: rebuilding, for Mr. J. Johnson.

Framwellgate Moor.—Two houses, for Mr. J. Southern.

Greenside.—Workmen's Institute, for the Stella Coal Co.

High Springwell.—House, for Mr. Wm. Smith.

Sunnybrow.—Workmen's Institute, for the Willington Colliery workmen.

West Hartlepool.—Public Library: alterations (£2,000).

Willington.—Parish Hall and Institute (£2,000).

ESSEX.

Aveley.—Council School: enlargement. Mr. W. Sharpin, contractor (£2,498).

Burnham-on-Crouch.—Aeroplane factory.

Cookery, Laundry, and Handicraft Centre. Mr. G. F. Bacon, contractor (£1,008).

Harlow.—St. John Baptist Church: proposed Institute.

Romford.—Sub fire station, Gidea Park Estate (£500).

Waltham Abbey.—Council School: alterations. Messrs. Jennings & Grenfell, contractors.

GLOUCESTERSHIRE.

Bristol.—University: men's hostel.

Cheltenham.—Five almshouses, Hales Road, for the Strickland Trustees.

Gloucester.—County School of Domestic Science: additions and alterations. Mr. F. W. Peer, contractor, Southgate Street (£749).

Painswick.—Orphanage for the blind, deaf and dumb. (Accommodation for 75 children.)

HAMPSHIRE.

Bedhampton.—House. Messrs. Wakeford & Ross, architects, High Street, Cosham.

Havant.—Parish Hall. Messrs. Rogers Bros., contractors, Park Road (£950).

Portsmouth.—Church of the Ascension, Stubbington Avenue, and St. Saviour's Church, Twyford Avenue (£14,000 to £15,000).

KENT.

Chislehurst.—Council Offices: additions and alterations. Council surveyor.

LANCASHIRE.

Bacup.—Baptist Sunday School. Mr. Baxter, architect.

Barrow.—Public Baths (£13,000).

Gyngae-over-Sands.—Convalescent Home (£15,000), for the National Council of the Club and Institute Union.

Haltwell.—St. Thomas Church: church house.

Horwich.—Reform Club premises, Longworth Road.

LINCOLNSHIRE.

Lincoln.—County Hospital: nurses' home and new ward. Hotel Central, High Street: additions and alterations.

Four houses, Kingsway, for Mr. C. Priestley.

Twenty-one houses, Rudyard Lane, for Mr. F. S. Oldershaw.

Two houses, Scorer Street, for the Lincoln Land and Building Society.

House and shop, West Parade, for Mr. R. L. Holland.

"Hare and Hounds" P.H., High Street: alterations, for Messrs. J. Hole & Co.

Wesleyan Church School, Walmer Street.

Scunthorpe.—Post Office, for H.M. Office of Works.

NORTHAMPTONSHIRE.

Brackley.—Council School for 228 places.

Irchester.—Council School: adaptation (£1,000).

Irthlingborough.—House, Finedon Road, for Mr. J. H. Perkins.

Milton.—Non-provided School.

Northampton.—Public Baths, Abingdon Street (£10,000).

Corn Exchange, by the Cattle Market.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Public mortuary, at the Swing Bridge (£800). Mr. Holford, City surveyor.

Council School, Welbeck Road: extension (£11,000).

Junior day Technical School, Shields Road.

NOTTINGHAMSHIRE.

Bulwell.—Cinema, Market Place (£8,000). Mr. F. Ball, architect, 23 King Street, Nottingham.

Southwell.—The "George and Dragon," Easthorpe: improvements.

SOMERSET.

Meare.—Housing scheme for the Wells R.D.C. Messrs. Petter & Warren, R.I.B.A., architects, Church Street, Yeovil.

STAFFORDSHIRE.

Cannock.—Police Station.

Stafford.—Dispensary, Taggs Croft, Lichfield Road, for Dr. F. M. Cookson.

Pair of semi-detached villas, Corporation Street, for Mr. H. J. Clay.

Stoke-upon-Trent.—Secondary School, near Hanley Park.

Wolverhampton.—Technical School, old Deanery site.

SUFFOLK.

Debenham.—Sir Robert Hitcham girls' and infants' school: enlargement. Mr. R. G. Fordham, architect, 2 Bolton Villas, Sidegate Lane, Ipswich.

Ipswich.—Slipper baths and lavatories, corner of London Road and Clarkson Street. Council surveyor.

SURREY.

Chobham.—Sixteen working-class cottages, Burrow Hill and West End (£3,350). Mr. Beeney, Council surveyor.

Merton.—Church of St. John the Divine, High Path. (Accommodation for 550 sittings.) £5,000 to £6,000.

Peaslake.—Village Hall (£1,000).

Worplesdon.—Perry Hill School: alterations.

SUSSEX.

Hove.—St. Thomas Church: proposed enlargement.

Petworth.—Twelve workmen's cottages, Station Road. Mr. W. Joyes, contractor, Billingshurst (£1,990).

Worthing.—School, Crescent Road, for the Mother Superior of Convent Notre-Dame de Sion. Messrs. Patching & Co., architects.

St. Andrew's Higher Grade School: rebuilding.

YORKSHIRE.

Farnley.—Mortuary, &c., for Leeds Old Hebrew Congregation. Mr. E. V. Wimpenny, architect, 38 Boar Lane, Leeds.

Liversedge.—Picture House, Millbridge. Mr. A. A. Desmond, architect, 45 and 47 Broad Street House, London, E.C.

Nunthorpe-in-Cleveland.—Proposed church.

Selby.—Conservative Club: enlargement (£1,000).

Sheffield.—Attercliffe Baths: alterations and improvements (£3,000).

Public Baths, Glossop Road: additions (£800).

Ewden Waterworks: accommodation huts, &c. (£4,100).

**It is stated that
"WINGET" Blocks
32" x 9" x 9" are too
heavy to handle**

But many leading Contractors state they *count* when laid! Other Contractors make two 16" x 9" x 9" Blocks at one operation on the "WINGET," or four 16" x 9" x 4½" may be made

AT ONE OPERATION

Thus there is nothing in the objection that "WINGET" Blocks are too heavy
THEY CAN BE MADE TO ANY SIZE

**THE "WINGET"
IS THE ONLY MACHINE
ON THE MARKET**

that will make BLOCKS, SLABS,
BRICKS, KERB, COPING,
FLUE BLOCKS, QUOINS,
PLINTH, *Etc., Etc.*

Numerous repeat orders prove the "WINGET" to be the only thoroughly efficient "Concrete" Block-making Machine.

The (U.K.) WINGET CONCRETE MACHINE CO., Ltd.
5 STAR BUILDINGS, NEWCASTLE - ON - TYNE.

WALES.

Berwyn.—Council School.

Bryn (Port Talbot).—Brynsion C.M. Chapel: rebuilding and enlargement. Mr. R. S. Griffiths, architect, Gilfach Road, Tonypany. Messrs. Thomas & Jones, contractors, Pontrhydyfen, Port Talbot (£1,430).

Conway.—Houses for the artisan classes.

Llanarthney.—Village Institute.

Penygraig.—Two shops. Mr. Griffiths, architect (as above). Mr. C. James, contractor, Hendracafn Road (£2,000).

Wrexham.—Smallpox Hospital (£1,490).

SCOTLAND.

Airdrie.—Bowling House, Manse Street, for the Bowling Club.

Dumbarton.—Poorhouse: reconstruction (£8,750). Mr. A. C. Denny, A.R.I.B.A., architect, British Linen Chambers.

Dundee.—Mortuary, Liff Road, for the Little Sisters of the Poor.

Dunfermline.—Bleaching Works, Touch: alterations for Messrs. R. Black & Sons.

Offices and Warehouse, Maygate, for Messrs. Fraser & Carmichael.

Printing Works, Halbeath Road, for Mr. D. Watt.

Double villa, Garvock Hill. Mr. J. Houston, architect, St. Margaret Street.

Duns.—N.B.R. Co.'s Station: reconstruction and enlargement. Company's engineer.

Glasgow.—Hotel, 172 Sauchiehall Street: alterations, for Mrs. Mason (of Dowanhill Gardens).

No. 37 Clarendon Street: alterations and extensions, for the City Bakeries, Ltd.

Compressor House, Parkhead Forge, for Messrs. Beardmore & Co., Ltd.

Invergordon.—Workmen's houses, Tomich Road and High Street, for the T.C.

Kirkcaldy.—School, Pathhead (£12,000). Mr. W. Williamson, F.R.I.B.A., architect, Royal Bank Buildings.

Wishaw.—Institute, Main Street (£6,500), for Y.M.C.A.

IRELAND.

Bangor.—Villa. Mr. W. J. Moore, architect, 35 Royal Avenue, Belfast.

Enniskillen.—Labourers' cottages, for the R.D.C.

Gorey.—Sixty-five Garden-City cottages (£10,000), for the R.D.C.

Lisburn.—Proposed Technical School.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 27,261. Nov. 27, 1912.—Baths. John Shanks, Tubal Works, Barrhead, Renfrewshire. The primary object of this invention is to provide a bath formed with an uninterrupted roll of a new configuration, the formation of which roll, extending around the entire upper edge of the bath without unsightly breaks in its contour, represents an important improvement not only from what may be termed an æsthetic point of view but also from a practical point of view—i.e. serves to prevent splashing of the water contents over the side of the bath, and if used in a spray-bath affords a convenient seat for spray fittings, &c., without the necessity for deforming the and 6 are cross sections on an enlarged scale of the rims of the baths. The bath is provided with a roll (1) of uniform or substantially uniform configuration extending uninterruptedly around the entire upper edge of the bath, the roll appearance of the bath by construction or attachment of a special shoulder to support such fittings and incidentally occasioning drawbacks involved by consequent inequalities in the metal and enamel. Fig. 1 is a plan view. Figs. 5 being of substantially ogee form on its upper face, as shown particularly in figs. 5 and 6—that is, curved convexly from the side of the bath, as at 2, continued by a substantial tangential approximately horizontal or upwardly inclined portion (3), curved concavely, the concave portion merging into a convex portion (4) downturned at the extreme outer edge to give the bath a more finished appearance. At the end of the bath adjacent to the taps the horizontal

portion may be of sufficient area to serve as a shelf (5, fig. 1) for supporting the soap, sponge, &c., the bath having the

Fig. 1.

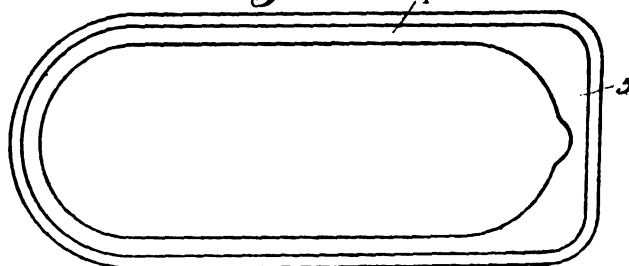


Fig. 5.

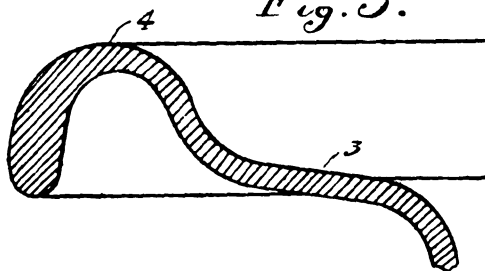
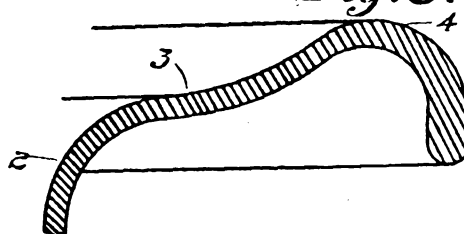


Fig. 6.



appearance in plan of a square-ended bath at the foot end. Sept. 17, 1913.

PATENT SPECIFICATIONS PUBLISHED
OCTOBER 9, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

No. 20,677. Sept. 11, 1912.—R. A. Whitson, A.M.I.C.E., 93 West George Street, Glasgow. Beams or boards for use in reinforced concrete structures.

20,881. Sept. 13, 1912.—F. W. Campbell, 3 Downshire Road, Bangor, Down, Ireland, and Concrete Piling, Ltd., Broadway Court, Victoria Street, S.W. Formation of concrete piles, piers, and the like in situ.

20,882. Sept. 13, 1912.—Richard Brierley, jun., Labour-num House, Powis Road, Ashton-on-Ribble, Preston. Piling and slating.

21,161. Sept. 17, 1912.—William Palmer, 196 Munster Road, Fulham, S.W. Artificial stone.

21,517. Sept. 21, 1912.—T. G. Besant, Willowsmere, Great Shelford, Cambs., architect. Pumps for raising water.

22,072. Sept. 28, 1912.—A. E. Elliott, Trafalgar Steam Marble Works, 69 West Cliff Road, Ramsgate. Automatic surfacing and polishing machine for polishing marble and granite.

24,035. Oct. 21, 1912.—H. F. Boersma, 77 Johan van Oldebarne-veldtlaan, The Hague. Building cement.

25,590. Nov. 7, 1912.—J. M. Stevens, 8 Sellons Avenue, Harlesden, N.W. Domestic coppers.

27,314. Nov. 27, 1912.—H. T. Tallack, 10 Great Turnstile, High Holborn, W.C. Mathematical drawing pens.

28,695. Dec. 13, 1912.—John Hart, 66 Parade, Birmingham. Acetylene-gas generators.

12,835. June 2, 1913.—M. W. Rosenshine, 3125 Jackson Street, San Francisco, California, U.S.A. Sash locks or fasteners for windows.

Any of the above specifications may be obtained from J. D. Roots & Co.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

(1) The L.G.O.Co.'s "B" TYPE.

2,500 of these vehicles at work in London. *Verb. sap.*

(2) The DAIMLER 3-TONNER.

The acme of refinement in Motor construction.

(3) The THORNYCROFT 30-cwt. CHASSIS.

(2 tons gross). It's THORNYCROFT—that's good enough.

(4) The HURTU LIGHTNING 15-CWT.

THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

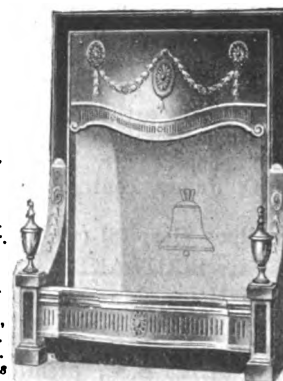
For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

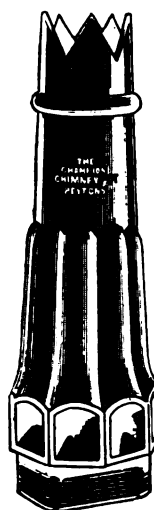
Gold Medal "BELL" Grates

are in use at
Charlton House, Kent.
Lound Hall, Newark.
Guilford Court, Northants.
Rushton Hall, Northants.
Westwood House, West Bergholt.
Turville Court, Henley-on-Thames.
Nevill Holt, Leicestershire.
Blunham Grange, Beds.
Milton House, Alsager.
Pollok Castle, Crompton Manor, Qundle.
Polebrook Hall, Weston Favell House, Northants.
Illustrated Catalogues free on request.



are in use at
Junior United Service Club, Lucknow.
Liberal Club, Glasgow.
St. Wilfred's, Portsmouth.
Cardiff Dock Offices.
Sandhurst College.
King Edward Grammar Schools.
Queen's Hospital for Nurses.
Harpurhey Baths.
Spinkwell Mills, Dewsbury.
Royal Bath Hotel, Bournemouth.
Chesterfield House, Hydro, Matlock.
Savoy Hotel, London.
Grand Hotel, London, &c., &c.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.
And Northampton.



The principal feature of the **CHAMPION CHIMNEY POT** is its magnificent updraft.

For many years the "Champion" has been specified by **LEADING ARCHITECTS** and has sold in large numbers.

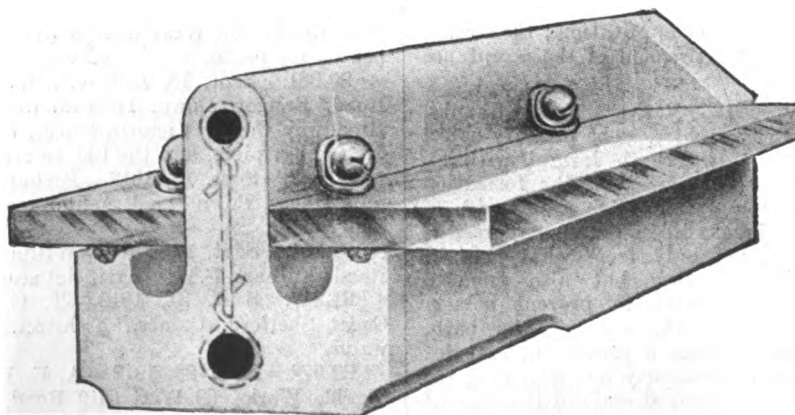
Architects speak highly of its **SMOKE-CURING** and **VENTILATION** qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to **The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.**

THE Universal Concrete & Construction Co. Ltd.

PATENT FERRO STONE GLAZING.

IMPROVES WITH
AGE.



QUICK DELIVERY
ASSURED.

Beautiful in Appearance. 25 per cent. Lighter than other Glazing. Fireproof. Acid Fume Proof. Reflects the Light. Economical. Everlasting.

Designs and Estimates Free on Application.

20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 VICTORIA.

The Architect.

CONTENTS.

	PAGE
Gas	373
At Weston-sub-Edge, Gloucs. (illustration)	374
Ernest Runtz	374
Sketches at Houghton-le-Spring, Durham (illustrations)	375
Design for Summer Residence near St. Petersburg (illustrated)	376
L.C.C. Building Contracts	376
Competition News	376
Illustrations :—	
Church of St. John the Baptist, Kensington	376
Fourteenth-Century Windows	376
Oxsted and Limpsfield (illustrated)	377
Considerations on the Brightnesses of Lights	379
Housing in St. Petersburg	380
The Trees of Manitoba	381
Spanish Old Masters at the Grafton Galleries	382
The Cottage Problem	383
Town Planning	385
L.C.C. School Building	386
A Child-Artist at the Dudley Galleries, London	386
Etchings and Engravings by Auguste Lepere	387
British Fire Prevention Committee	387

Ecclesiastical Architecture in Central Italy	PAGE 387
Designs for Immigration Board Offices at Omsk, Siberia (illustrated)	388-9
Royal Institute of British Architects	393
Glasgow Institute of Architects	393
Building Progress in the Provinces	393
British Patent Specifications	395

FORTHCOMING EVENTS.

Monday, October 27.

Architectural Association: Annual General Meeting; Presidential Address by Mr. W. Curtis Green, F.R.I.B.A., and Distribution of Prizes, at 8 p.m.

Thursday, October 30.

Architectural Association Camera, Sketch, and Debate Club: Meeting at 8 p.m.

Monday, November 3.

Royal Institute of British Architects: Presidential Opening Address by Mr. Reginald Blomfield, A.R.A., at 8.30 p.m.

Wednesday, November 5.

Royal Archaeological Institute: Paper entitled "The Pestilences of the Fourteenth Century in the Diocese of York," by Mr. A. Hamilton Thompson, M.A., F.S.A., at 4.30 p.m., at the Society of Antiquaries' Apartments.

GAS.

THE National Gas Exhibition at Shepherd's Bush has fully justified its promotion by the value of the object-lesson in the manifold uses of gas, which is one of the best that the public has ever had the opportunity of studying. An admirable feature of the Exhibition is the manner in which it has been scrupulously organised as an exhibition of the capabilities of gas rather than of the various forms of ironmongery that can be obtained from competing firms. The exhibition shows that enormous strides have been made during the last few years in the application of gas for manufacturing as well as for domestic purposes.

The chief competitors with which gas has to deal are coal and electricity, and the improvements that have been made in its use so as to establish it as a preferable form of heat generation have shown its superiority in the matter of cleanliness and convenience over coal, and of economy—as far as we have got at present—over electricity.

In the domestic use of gas for heating the improvements in the form of gas fires have chiefly been directed towards increasing the efficiency as well as the pleasantness of radiant heat, rather than conducted or convected. The earlier forms of stove in which gas was employed for heating relied very largely upon the warming of air by conduction and convection from metal surfaces, and in some cases by actual mixture of burnt gas with the atmosphere of the room. Now it is accepted as a canon that the products of gas combustion should be carried away by a flue. The amount of heated metal is reduced to a minimum, and warmth is diffused simply through radiation from highly heated bodies. Thus one of the strongest points of the coal fire—its radiant heat—has been made the property also of the gas fire. There were, nevertheless, in the Exhibition some few examples of the so-called gas radiator, which are useful on occasion in isolated instances, but which, in our opinion, it is desirable always to avoid whenever possible. As a variant of the older form of gas radiator, we were pleased to note some examples similar in form and patterns to an electric radiator, in which highly heated tubes form the source of radiant heat.

Another direction in which manufacturers of gas apparatus have exerted their ingenuity is that of gas-heated boilers whether for the ordinary household copper, for the supply of hot water to be drawn for use, or for warm water heating from a central source by conduction

in pipes and radiators. This last employment of gas-heating still, however, in our opinion, affords room for further development, particularly in the direction of economy. We still need boilers which will extract from the burning gas the maximum amount of heat and transmit it to the water, leaving only just sufficient to enable the products of gas combustion to be carried away.

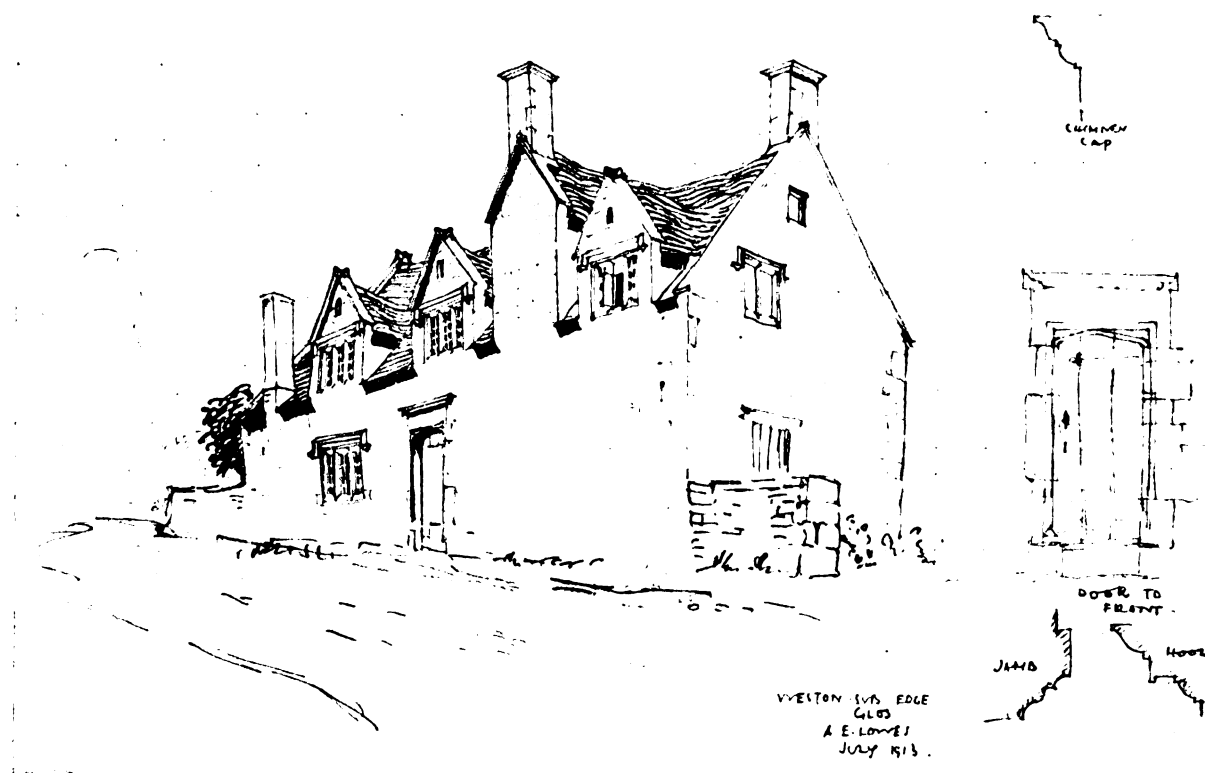
In cookery it might almost be supposed that gas had been brought to a state of perfection years ago, but the gas cookers of to-day are improved, if but slightly, beyond those of the past. The chief direction for improvement in gas cookery that is still required is the instruction of cooks, and this the various demonstrations at the Exhibition should have gone a considerable way towards effecting.

The improvements in the use of gas for lighting in the domestic branch are not for the most part of quite recent introduction, as the use of incandescent mantles, first of the vertical pattern and later of the drop pattern, may be said to be now well established. The introduction of automatic lighting from the push-button is, however, a step in advance, and gives to gas one of the advantages in which electric light has hitherto been superior. The use of this device makes for economy in the burning of gas as well as for convenience.

In public lighting, high-pressure gas has added largely to the efficiency and capability of installations in which a powerful source is desirable. It also permits of the use of gas for lighting in situations where the atmosphere is unclean.

One very important result of the employment of the more general use of gas for heating, both domestic and manufacturing, is the assistance thereby afforded to the success of the smoke abatement movement, and this was made a feature of conferences at the Exhibition. Not only does the open coal fire entail a loss of 75 per cent. of the heating power of the fuel consumed, but this imperfect combustion and utilisation results in an enormous production of smoke and harmful gases, leading to the formation of fog, with its undoubted consequence of a very considerable increase in the death-rate occasioned thereby.

The modern domestic gas fire has, as we have already pointed out, attained efficiency and pleasantness, and it has also—what is, from the point of view of the public, of quite as much importance—reached economy; so that a gas fire, taking everything into consideration, is now probably quite as cheap as coal. We are still, however,



waiting for a further development of the use of tarless fuel, and in this direction we think that gas companies might very well increase their activity.

The beneficially hygienic results of the use of gas for lighting under modern conditions with incandescent burners and mantles are indicated by experiments, which show that the air of a room lighted by such burners is positively purified by the action of a strong uprush of heated products of combustion from the gas burners drawing up the emanations from the skin and lungs of the occupants, charring and sterilising any germs that accompany them, and, reaching the ceiling at a high temperature, diffusing through the plaster so rapidly as to draw fresh air into the lower portion and create a brisk draught under the door of the room, and, while so diffusing, filtering off the charred remains of germs and organic matter on the whitewashed ceiling, so that this apparent defect of gas lighting, which has undoubtedly been intensified by the introduction of incandescent mantles, provides a compensating advantage in greater purity of the atmosphere.

We note that the scientists who have spoken at the various conferences and lectures during the Exhibition have made the point that gas lighting is less injurious to the eyes than electric light. It may, however, very possibly be urged with a certain amount of truth that we have had here expressed the views of those who are predisposed to view gas lighting with favour, and that with proper precautions in the arrangement of electric lighting points, both as regards their concentration and their incidence, that there does not really exist any such superiority in the matter of gas lighting as has been predicated.

In the use of gas for heating operations required in manufacturing industries the Exhibition showed a fine range of adaptability. The heat required for such operations is necessarily very often of a high intensity, and gas properly applied has shown itself capable of providing that intensity with regard to a very large range of manufactures. The cleanliness, the ease of regulation, and the uniformity of temperature obtained from gas must necessarily be of considerable advantage in comparison with any form of heating by coal or coke.

Probably not many of the public who have visited the Exhibition have hitherto realised the value of the residuals in the gas industry, and the exhibition of what can be obtained from the distillation of coal in the manufacture of gas must have been an interesting revelation. We believe it is well recognised amongst gas engineers that the value of the residuals is sufficient to enable them to give away the gas at the point of its manufacture, so that the further employment of these residuals must ultimately result in a lessening of the cost of gas to the consumer, and consequently to its more extensive use, with an advantage to both the health and the pockets of the general public.

ERNEST RUNTZ.

By the death last week of Mr. Ernest Runtz at the comparatively early age of fifty-four years the profession of architecture has been deprived of a remarkable artistic personality. Articled at the age of sixteen to Mr. Samuel Walker, F.S.I., and seven years later taken into partnership by that gentleman, Ernest Runtz was brought up and practised as an auctioneer, valuer, and estate agent for several years before his artistic instinct impelled him to the study of the art of architecture, at an age when most architects have passed through the schools and established themselves in practice. Whilst fully occupied during the day with the extensive business of his firm he threw himself with intense enthusiasm into the study of architecture, and devoted the whole of his leisure to hard work with such thoroughness that in a short time he obtained the Donaldson silver medal for Fine Art at University College, London, and passed the examination qualifying for Associateship of the Royal Institute of British Architects. He was, however, refused election as an Associate on account of his partnership in an auctioneering firm. Later he felt himself strong enough to quit his lucrative business connection with Mr. Walker, and relied upon architecture for his professional income, with such success that in 1908 he was elected a Fellow of the Royal Institute on the strength of his executed works.

From the very first Mr. Runtz was filled with the ambition to design large and important buildings, and one of his earliest productions was a thoroughly worked-out scheme for a new London County Hall on the Victoria Embankment, a detail drawing of which, by his own hand, was exhibited at the Royal Academy. There can be no doubt that this design,



VESTRY
HOUGHTON & SPRING

AEL
JULY
1913

although marked, in a strictly critical view, by immaturity of his artistic development, was the foundation of Mr. Runtz's success in practice, as it impressed his friends with the conviction of his ability as an architect as well as a man of business, and opportunities of architectural design accordingly soon came to him.

Several notable theatres have been erected from the designs of Mr. Runtz—the Gaiety and the Crown at Peckham, and the reconstruction of the Adelphi and the Pavilion, Whitechapel, in London, and in the provinces theatres at Birmingham, Cambridge, Cardiff, Halifax, Hastings, Lowestoft, and Middlesbrough; but it would not be correct to describe him entirely, or even principally, as a "theatre architect." For the West End Clothiers' Company in London, he erected new buildings in Cornhill and the Strand, at the corner of Adam Street; whilst the Gaiety Restaurant and Short's, the offices of the Norwich Union Assurance Company at the corner of St. James's Street and Piccadilly, and the offices of the Anglo-American Oil Company in Birdcage Walk are other examples of important buildings in London. That Ernest Runtz's success as an architect was not due to interest or influence alone is evidenced by the fact that his design for the last-mentioned building was selected in a limited competition in which some of our most eminent artist-architects participated. Quite early in his career also his design for Oxford Municipal Buildings was one of the six chosen in open competition by Mr. Colclutt for the final essay, and in the open competition for Manchester Technical Schools his design (in collaboration with Mr. F. R. Farrow) obtained a premium.

Quite a different branch of his practice was marked by a group of what we may call buildings for philanthropic purposes, including a hospital at Lewes; St. Giles' Christian



ALMHOUSE
HOUGHTON & SPRING

A. L. Runtz
JULY 1913

Mission Chapel and Boys' Home, Wild Street, Kingsway; the "Emily Harris" Home for Working Girls, Alfred Place, W.C.; St. Mary's Club for Working Girls, Southwark; and Club for Working Girls, Walworth. He also designed a considerable number of factories and other buildings for business purposes, and domestic work also figured largely amongst the number of Mr. Runtz's designs.

Besides the buildings already mentioned, Mr. Runtz's works included:—*Shops and Offices*: Alterations to St. Stephen's House, Westminster, for the Central Conservative Association; Glasgow Central Stores, Glasgow; alterations to British Empire Life Office, King William Street, E.C.; 4 and 5 Copthall Avenue, E.C.; Temple Bar Restaurant, Strand; No. 1 Berners Street, W.; 39 Market Street, Manchester; 13 George Street, E.C.; alterations to 72 Victoria Street, S.W.; alterations for the West End Clothiers' Co., to 242 Oxford Street; 1 and 2 Poultry, E.C.; 66 Regent Street, W.; 37 Ludgate Hill, E.C.; Boar Lane, Leeds; 65 Gracechurch Street, E.C.; High Street, Sheffield; North Bridge Street, Edinburgh; and Dale Street, Liverpool.

Factories and Warehouses.—Allsopp's Bottling Stores, Dulwich; warehouse, Widegate Street, E.C., for Messrs. Carter & Aynsley; warehouse, Old Street, E.C., for Wm. Brass, Esq.; Messrs. Griffin's new premises in Kingsway, W.C.; alterations to factory, Coburg Road, Old Kent Road, for Messrs. Geo. Cooper & Co.; warehouse, Kender Street, New Cross, S.E.; warehouse, Sail Street, Lambeth, for Geo. Edwardes, Esq.

Domestic Work.—Alterations to Woburn Lodge, Addlestone; alterations and additions to Castle Keep, Reigate; cottages, Hornden-on-the-Hill, for Sir Joseph Dimsdale; houses and shops, East Sheen; houses near Lewes for James Stacey, Esq.; stables at Lingfield for Arthur Burr, Esq.; alterations to Old Bank House, Lewes; house at Lewes for W. G. A. Edwards, Esq.; house and shop, Lewes High Street; additions to house at Hellingly, Sussex; alterations to 11 Park Square, W., for Geo. Edwardes, Esq.; house at Margate for Dr. Hill; houses on the Castle Scene Estate, Hythe; houses at Seaford, Sussex.

Sundry Works.—Alterations and decorations to Hotel Metropole, Bexhill; alterations to Royal Links Hotel, Cromer; extension of the Hotel de Puy, near Dieppe; alterations to the Guildhall School of Music; alterations to the Green Room Club; alterations to White Hart Hotel, Lewes; alterations and additions to Finsbury Park Hotel, N.

The rapid growth of his practice induced Mr. Runtz to take into partnership two of his assistants, the late Mr. A. C. Breden and Mr. G. McLean Ford, and many of the buildings we have mentioned were carried out with their collaboration. Latterly, after the dissolution of this partnership, Mr. Runtz took his eldest son, Mr. E. Munro Runtz, into the business, which was then carried on under the style of "Ernest Runtz & Son."

The artistic nature of Ernest Runtz was not confined in its activity to architecture alone, though he ever regarded this as the "Mistress Art." He was a painter of no small ability, in both oil and water-colour; a capable musician, both as a composer and as an executant; and a clever dramatist, one of whose plays—written in collaboration with his old friend Mr. Theo. Moore—was a highly successful

feature of one of the annual symposia of the Architectural Association.

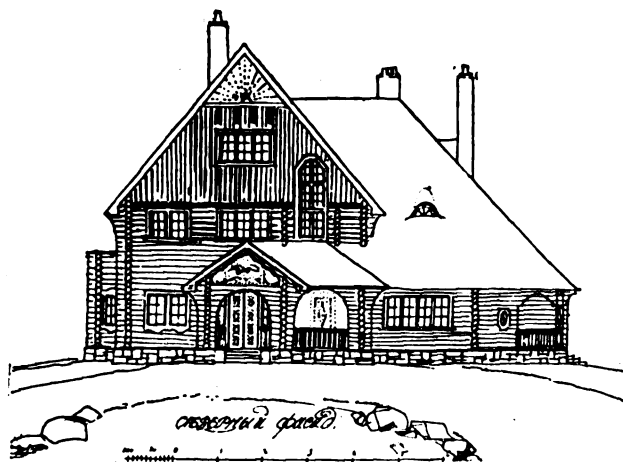
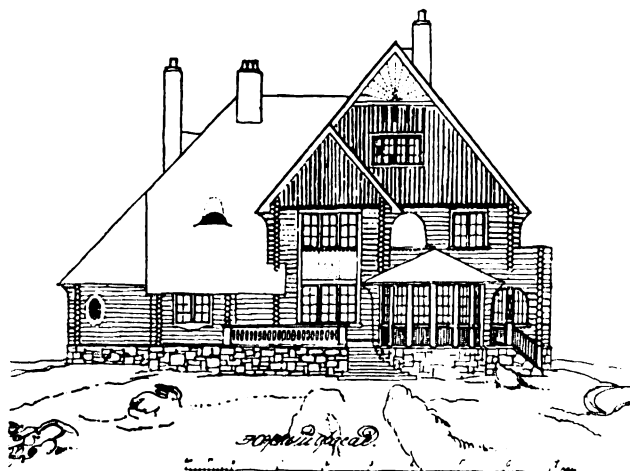
Intensely enthusiastic over his own work, Ernest Runtz was also warmly appreciative of good work by his contemporaries, and although he took no active part in the corporate life of the architectural profession, was always keenly interested in its movements.

Outside of architecture, Mr. Runtz was on the livery of the Worshipful Company of Wheelwrights, a member of the Perseverance Lodge, No. 7, of Freemasons, a life member of the Green Room Club, and at one time member of the City Carlton and Thatched House Clubs.

An over-full and active life combined with a highly-strung artistic temperament to make such demands upon his vitality that, though this was of good calibre, he was unable to fully recover from the effects of a serious operation, and succumbed.

DESIGN FOR A SUMMER RESIDENCE NEAR ST. PETERSBURG.

THE principal difficulty in designing a country house in the North of Russia is the lighting of living-rooms, which have to be arranged to face the south or east. Of seven



[From *Zodichy*.]

FIRST PREMIATED DESIGN FOR A SUMMER RESIDENCE
IN FINLAND.—By Messrs. BOURMANN & PERNA.

designs recently submitted in competition the first prize was awarded to that which we illustrate, which was the work of Messrs. Bourmann & Perna.

L.C.C. BUILDING CONTRACTS.

In the London County Council there appears to be again an endeavour to presume the truth of the allegation, repeatedly made in the Council Chamber, that a ring of building contractors is being formed against them, and in connection therewith a statement was made on Tuesday last by the Chairman of the Education Committee.

Mr. Lewis asked (1) whether a report had been made to the committee by the officers of the Council as to the lack of sufficient competition by building contractors for building work; (2) whether in one case, out of twenty firms invited, only four sent in tenders, and in another, out of fourteen firms invited, only four sent in tenders; and (3) whether, under those circumstances, if an efficient

works department had been still available a valuable check might not have been provided.

Mr. John W. Gilbert (chairman of the committee) replied that a report on the subject had been presented to the Buildings Sub-Committee. A further report had been asked for from the officers concerned. The answer to the second part of the question was also in the affirmative. The answer to question No. 3 was in the negative.

COMPETITION NEWS.

BATH.—Mr. H. T. Hare, F.R.I.B.A., has been nominated by the President of the Royal Institute of British Architects as assessor for the designs of the proposed secondary school at Bath.

BLACKBURN.—Mr. F. E. Briggs, of the firm of Messrs. Briggs, Wolstenholme & Thornely, architects, of Blackburn and Liverpool, has made his awards on the competitive plans sent in for a new fire station and thirty-three firemen's dwellings on the Wrangling, as follows:—First prize, £100 (merged in commission), Mr. Walter Stirrup, Richmond Terrace; second prize £50, Mr. John Hayhurst, Richmond Terrace; third prize £25, Mr. F. J. Parkinson, Richmond Terrace. The estimated cost of Mr. Stirrup's scheme is £24,960. The competition was confined to local architects, and eleven sets of plans were sent in.

ECCLES.—In connection with the proposed Council school in Anson Street, Winton, nine sets of competitive plans have been under the consideration of the Education Committee.

HASTINGS.—The Town Council have now formally decided to purchase the hospital site on the sea front for £15,050, and to build a winter garden or kursaal at a cost not to exceed £20,000. A great attraction will thus be provided for visitors and residents all the year round. The scheme is to be pushed on with all possible speed, and designs for the buildings will be put up for public competition.

HENDON.—The Urban District Council propose to erect a swimming bath and public hall adjacent to the public offices at Burroughs, Hendon; and in connection therewith have decided to hold an open competition among architects for designs, the premiums to be fixed at £100, £75, and £50. The President of the Royal Institute of British Architects has been asked to nominate an assessor.

WALES.—The result of the architectural competition for the proposed North Wales sanatorium to be erected at Llanrhaiadr, Denbigh, has been announced as follows:—(1) Mr. T. Taliesin Rees, 51 North John Street, Liverpool; (2) Mr. Willoughby Thomas, of Cardiff; (3) Mr. Sidney Williams, of Cardiff. Thirty-three sets of designs were submitted for the sanatorium, which is estimated to cost £20,000. Mr. E. T. Hall, of London, was the assessor.

WARRINGTON.—In connection with the proposal of the Education Committee to erect a new school in Lovely Lane to cost about £14,000, the Sites and Buildings Committee proposed to rescind a resolution to obtain competitive plans in order that local architects should have a preference, the committee to adjudicate on the plans to save the appointment of an assessor. At the meeting of the Education Committee several members opposed the principle of limitation, the opinion being expressed that only the best possible plans could be obtained by throwing open the competition. The proposals of the Sites and Buildings Committee were defeated by the casting vote of the Chairman.

ILLUSTRATIONS.

CHURCH OF ST. JOHN THE BAPTIST, KENSINGTON.

WHEN the west front of this church was completed, the large arch originally intended to form the western portal was adapted to give access from the nave to the new baptistery, and, as the deep inner reveal had a rather bare appearance, it was subsequently decided to add a screen and statues.

The pulpit canopy has recently been erected to replace a temporary sounding board. The screen and canopy have been executed in oak by Mr. A. Robinson, of the Bloomsbury Carving Works, from the design of Mr. J. Standen Adkins (Jas. Brooks, Son & Adkins). The statues in oak and stone, and the foliage carving in the archway, are the work of Mr. J. E. Taylerson, of 22 Marney Road, Lavender Hill.

FOURTEENTH-CENTURY WINDOWS.

THE drawings of windows at the Church of St. Mary, Morpeth, Northumberland, and Christchurch Priory, Hants, were submitted and awarded prizes in the monthly competitions of "The Architect" Students' Sketching and Measuring Club.

OXTED AND LIMPSFIELD.*

By F. H. HARPER.

NESTLED in the beautiful vale of Holmesdale, beneath Coldharbour, the highest point of the North Downs, lie the villages of Oxted and Limpsfield.

Let us begin our description of these ancient villages by reading the records given of them in the Domesday Book, which furnishes the earliest available information:—

"In Tenrige (Tandridge) Hundred Earl Eustace holds Aestede (Oxted). Gida, the mother of Harold, held it in the time of King Edward. It was then assessed for twenty hides; now for four hides. The land is for twenty ploughs. In demesne there are two ploughs, and thirty-four villanes with eighteen ploughs. There are two mills of twelve shillings and sixpence, and four acres of meadow. Wood for pannage of a hundred hogs; and in Suduurea (Southwark) one messuage of two pence, and six serfs and nine bordars. There is a church. In the time of King Edward it was worth sixteen pounds; when he received it ten pounds; now fourteen pounds.

"In Tenrige (Tandridge) Hundred the Abbot of Battle holds Limenesfeld (Limpsfield). Harold held it in the time of King Edward. It was then assessed for twenty-five hides. Now, since the Abbot received it, it is not assessed. The land is for twelve ploughs. In demesne there are five ploughs, and twenty-five villanes, and six bordars with fourteen ploughs. There is one mill of two shillings, and one fishery, and one church, and four acres of meadow. Wood for pannage of a hundred and fifty hogs. (There are) two stone quarries of two shillings, and three nests of hawks in the wood, and ten serfs. In the time of King Edward it was worth twenty pounds, and afterwards fifteen pounds; now twenty-four pounds."

From these accounts it is clear that their antiquity is beyond question, that the hamlets were well established at the time of the invasion, that for many centuries these villages have been in being, and that for close upon nine centuries Christian churches have been maintained on the spots we have visited this afternoon.

The name of Oxted, or Aestede as it is given in the Domesday Survey, is composed of the two Saxon words *Ac*, meaning oak, and *stede*, meaning a place, thus "a settlement among the oak woods," and it is shown by the Norman surveyor as a small, peaceful, agricultural settlement; while Limenesfeld or Limpsfield is very similar, albeit with the additional importance of the possession of two stone quarries and a fishery.

For the meaning of Limenesfeld or Limpsfield—there have been various other ways of spelling the name—I venture to suggest that it may be derived from the Saxon words *Lim* (lime) and *feld* (a forest clearing). The Domesday Survey tells us that there were two stone quarries in the manor, and the manufacture of lime is still carried on at Oxted and other places in the neighbourhood.

Oxted.

For some reason which does not now appear the old village of Oxted stands over half a mile from the church. Near the church came, in modern times, the railway station, around which a new village has sprung up. After the time of the Survey there follows a period during which the manor was presumably a happy one, inasmuch as it has no history—at all events I am unable to trace the holder of the manor between the Earl Eustace de Bologne mentioned in the Domesday Book and the Hoskins family, by whom it was held for about two centuries prior to 1798. In that year it devolved upon Mrs. Masters, with whose descendants it remains to this day.

Notwithstanding the hiatus in the history of the manor, extending as it does from the eleventh to the sixteenth century, it is clear from the successive restorations to the church that the residents in the district were sufficiently prosperous to be able adequately to maintain the fabric of their church, as we have seen for ourselves to-day.

Oxted Church.

The church of the Virgin Mary at Oxted is built for the most part of sandstone, with tiled roofs, and is certainly not lacking in interest, although successive rebuildings would seem to have eradicated all traces of the Saxon church. That edifice was probably small, but there are signs that the advent of the Normans heralded a more pretentious construction.

The remains of their work are scanty, but they are to be seen at the base of the tower and in portions of the Transitional pillars and caps in the eastern piers on each side of the nave arcade. These remains would appear to indicate a church comprising nave with two aisles and a western tower. At the present time we have a church with nave, chancel, north and south aisles, and a low, square, embattled tower. This tower, which is for the most part Early English, was formerly surmounted by a spire, and Aubrey alludes to the church as "the church with a handsome spire."

The chancel dates from the Decorated period, and is of fine proportions.

There are two reticulated windows of the Decorated period on each side, and the remains of an interesting two-light window of the fifteenth century in a recess at the west end of the south wall. The east window (in the upper part of which is some old glass) is also Decorated, but the tracery is recent and of curvilinear design. The mouldings of this window have unfortunately been mutilated on the outside. There is a piscina with shelf and drain in the south wall near the altar. The reredos and encaustic tiles were inserted in 1885. The chancel arch is also Decorated, and around it are traces of wall paintings uncovered a few years ago, probably dating from the fourteenth century.

The nave of three bays consists of Perpendicular arches of the fifteenth century that rest on piers of four clustered shafts, with the traces of Transitional work, already alluded to, on the eastern piers.

About the year 1673, which date is cut in the exterior of the east well of the chancel, further restoration appears to have been carried out. There is a tradition that the chancel was destroyed by lightning shortly before this date, but whether this was the case is uncertain. There is no doubt, however, as to the damage sustained from the lightning in 1719. The records in the registers state that the church and chancel were burnt by a great tempest of lightning on July 17, 1719, and add that the fire began about one o'clock in the morning on the top of the spire and melted the five bells. Ten years later five new bells were hung and first rung on November 5, 1729.

No attempt was, however, made to rebuild the spire. Manning and Bray's history describes the tower in 1809 as being surmounted by a small turret holding five bells, but this turret has disappeared and the bells now hang in the tower itself.

After the disaster of 1719 a considerable amount of rebuilding was necessary, and this is no doubt the date of the upper part of the wall of the south aisle, which is less weather-worn than the lower portion.

Although the original screen has completely disappeared, the rood staircase on the south side of the chancel arch remains in good condition. The new oak screen was inserted in 1903, and is richly carved. The choir stalls were also added in the same year, and were designed by Mr. J. Oldrid Scott.

Galleries formerly existed, dating from the eighteenth century. These were abolished in 1877, with the exception of that in the north chapel (at one time used as a vestry), and the little ones on the north and south sides of the tower.

The windows in the south aisle were inserted in 1838 in place of those dating from the fire of 1719.

Other features worthy of notice are the old iron box in the north chapel, the lid of which is covered by an elaborate lock which has thirteen bolts; the curious passage from the end of the north aisle into the chancel; the Perpendicular porch, roofed with Horsham stone; and the fine Perpendicular oak door.

The present font is modern. One of the fifteenth century, formerly here, is, I understand, now at the new church at Hurst Green, near by. Outside the church is a sundial erected in 1815.

The memorials in Oxted Church are so numerous and various that anything approaching a detailed description is impossible within the limits imposed on this paper.

Many of them are to members of the Hoskins family, and do not call for particular attention. Early brasses are represented by one in the chancel to John Yuge, rector, who died 1428, and another to Johanne Haselden, 1480. Seventeenth-century brasses are to be seen in those to Mary, Joan, and Radulphus Rand, 1638, 1641, and 1648 respectively, and also in some of the Hoskins brasses.

One of the last-named is worthy of notice, that which was formerly on the floor on the south side within the altar-rails, but which is now on the south wall, over the organ.

B

* Read on the occasion of a visit of the Upper Norwood Athenæum.

It records the death, on April 10, 1611, of Thomas Hoskins, gent., second son of Sir Thomas Hoskins, knight, at the age of five years, and states that about a quarter of an hour before his death he, without any instruction, spoke the words, "And lead us not into temptation, but deliver us from all evil," adding that these were his last words. The inscription continues, "Here also lyeth interred the body of Thomas Hoskins, gent., the fifth sonne of Sir Thos. Hoskins, knight, who deceased the 13th of March, Ao. 1611, being half a yeare of age."

It is probable that but few brasses are to be found bearing memorials to two brothers buried beneath, both with the same Christian name, and dying within a month of each other. It is possible that the elder son Thomas was a weakly child and not likely to live to maturity, and that the parents named the younger son Thomas also, with a view to continuing the family name; but, as it turned out, the younger Thomas died a month before his elder brother. It is noteworthy that both the five-year-old boy and the six-months-old infant are carefully described as "gents."

Other Hoskins memorials are the brass to the left of the organ to John Hoskins (d. 1613), interesting as not being strictly a quadrangular plate, nor yet cut to the figure, as in the earlier examples, but a transition between the two, and the slab on the chancel floor to Ann, wife of Chas. Hoskins, who died in 1651, with an inscription which concludes with the words, "Let this patterne of piety, mapp of misery, mirrour of patience here rest."

Another memorial is the fine marble monument on the north wall of the chancel, formerly coloured, but now worn and faded. The figures are of a man and his wife, both in black, kneeling at a faldstool beneath a deeply-recessed arch, and below are represented their ten sons and seven daughters. The father of this family was John Aldersley, "haberdasher and merchant venturor of London," who died in 1616, at the age of seventy-five, and who was doubtless a believer in the strenuous life.

In the churchyard are two stone slabs lying side by side in the grass, close to the south wall of the chancel. They



are of the early form of stone sarcophagus lid, with a cross carved on each, and from the workmanship may be dated from early Norman times.

Limpsfield.

This manor was presented by the Conqueror to the Abbot of the newly-founded Abbey at Battle, in Sussex, and with his successors it remained until the Dissolution. It was then granted to Sir John Gresham, a member of the Mercers' Company, who founded a large fortune in trade. Sir John Gresham was the brother of Sir Richard Gresham, a leading man in the City and Lord Mayor of London,

who acted as agent for King Henry VIII. for the registration of loans with foreign merchants, and uncle of Sir Thomas Gresham, the founder of the Royal Exchange.

With the Gresham family the manor remained until the death of Sir Marmaduke Gresham in 1742. It then changed owners several times, until, thirty-seven years later, it was repurchased by Sir Marmaduke's son, Sir John Gresham, and from him it passed to his daughter, who married William Leveson Gower, by whose descendants it is still held.

The Manor House (now a school for girls) was for a

Pewter Pitcher. Limpsfield Church
17½ high
Surrey



time the home of Eugenia, widow of Philip Stanhope, the son of the fourth Earl of Chesterfield, to whom he addressed his famous letters. A tablet to her memory (1783) is on the west wall of the north aisle of the church, where there are also the tablets of Philip Stanhope (d. 1801) and Elizabeth Stanhope, widow of Philip Stanhope (1818), doubtless the son and daughter-in-law of the first Philip Stanhope.

Limpsfield Church.

The church of St. Peter at Limpsfield seems to have been rather unusual in plan, consisting of a nave with south aisle, and a chancel with a chapel to the north and the tower to the south of it, but the addition of the north aisle in 1872 has improved the symmetry of the building.

Brayley, in 1841, describes the church as a "clumsy old structure," and seems to have taken offence with the roof, which is partly Horsham stone and partly tiles. But I venture to think that few will endorse that view. It is but fair, however, to state the church was thoroughly restored in 1871 and 1872, and it is possible that it was then greatly improved.

The churchyard is entered by a picturesque lych-gate of the fourteenth or fifteenth century.

The tower, placed very unusually to the south of the chancel, is apparently the oldest part of the edifice. This is of late Norman or Transitional work, and is surmounted by a simple form of spire. The window in the south wall has inserted plate tracery.

The bottom stage of the tower is now used as an organ-chamber, and is open to the south aisle by a pointed arch—a plain Norman arch opening into the chancel being blocked by the organ. In the south wall is a round-headed piscina.

The chancel, north chapel, nave, and south aisle are Early English work of the thirteenth century. The triple

lancet east window is however modern (1872), having replaced one of debased Perpendicular style.

The pulpit of panelled oak, hexagonal in shape, was presented to the church by Mr. Samuel Savage in 1766.

The font is a square basin on a thick, fluted, central column, with four small angle shafts. Thorne and Morris unite in describing this as Early English, but Home considers it Late Norman, and suggests that the central shaft was recut in the fifteenth century.

The old metal ewer is worthy of notice.

The rood screen has disappeared, but the rood-loft arch still remains.

A most noticeable feature of the interior of the church is the large number of niches and openings in the chancel. On the south-east wall is a large plain piscina, with a rectangular aumbry above it. To the west of this are two recesses—one with a pointed and the other with a segmental head—with seats. If these were sedilia the floor-level must have been lowered since they were built, as otherwise it is difficult to explain the height at which the seats are placed. The westernmost seat is outside the present communion-rails, showing that the arrangements of the chancel have undergone alterations. Another opening, discovered during the restoration in 1872, is a splayed lancet at the extreme eastern edge of the south wall—probably a “lowside,” though the position is not normal. Home, in referring to this window, says that it helped to light a sacristy which once existed across the east end of the chancel, the altar standing some feet more forward than at present.

Yet another remarkable niche is that in the east wall. The head is segmental, and the top is pierced with a kind of chimney. Mr. Johnston, writing in the Victoria History of Surrey, refers to “what have been variously explained as niches for lamps or ovens for baking the sacramental wafers are to be seen in one or two churches—Nutfield, Dunsfold, and Limpsfield.”

Somewhat hidden away under one of the arches opening into the north chapel is the lower edge of an old bell with chains attached to it. Round the outside of the edge is an inscription:—

“Johannis multis annis resonet campana.”

On the eastern respond of the chapel arcade hangs a small censer, probably of the thirteenth century, which is stated in the Surrey Archaeological Collections to be similar to that found at Stoke d'Abernon in 1807.

In the north chapel a fragment of carved stone is let into the wall.

The glass throughout the church, with the exception of a few fragments in the Perpendicular window of the north wall of the north chapel, which are old, is modern and good.

Of the tombs and memorial brasses of Limpsfield Church the most noticeable is that at the west end of the south aisle, a recumbent effigy in marble, by Noble, of the thirteenth Baron Elphinstone (d. 1860), and outside the west wall is a memorial to his uncle, the Hon. Mountstewart Elphinstone, Governor of Bombay and historian of India, who resided at Hookwood, near the church, until his death in 1859.

On the west wall of the nave there is a brass to George Elyott (d. 1644), Groom of the Privy Chamber of Queen Henrietta Maria.

On the south wall is a memorial to Marmaduke Hilton, a London merchant in the latter part of the eighteenth century. It records his “singular benevolence and humanity, strict integrity, and honour in his profession, uniform attention to every moral and religious duty.”

There is also a memorial to Dame Martha Gresham, relict of Sir Edward Gresham, died January 14, 1711-12.

The Stanhope memorials have already been alluded to.

In the churchyard a note of quiet heroism is to be found in the inscription to Harriet Kenward, 1866. “Her last illness arose from nursing some neighbours ill with cholera when no one else could be found to attend them.”

Near the south porch is another, reading:—

“Here lieth the body of Catherine, wife of Isaac Outtrim, who dy'd Octor. ye 11th, 1730, aged 71 years. . . . Oh I am come to be thy guest, let me in some Darck Lodging Rest, For I am weary full of paine, and of my pilgrimage complain.”

In compiling these papers I have made a considerable number of quotations from Murray's “Handbook for Travellers in Surrey,” 1898, James Thorne's “Handbook of the Environs of London,” 1876, Gordon Home's “Oxted, Limpsfield, and Edenbridge,” 1904, J. E. Morris' “The Churches of Surrey,” Adams' “History, Antiquities, and Topography of Surrey,” 1860.

SOME CONSIDERATIONS ON THE BRIGHTNESSES OF LIGHTS.*

By Professor SILVANUS P. THOMPSON, D.Sc., F.R.S.

IN spite of all the efforts of the men who have been studying and proclaiming the laws of illumination, there is a vast amount of ignorance still to be cleared away on the subject of good lighting. The observations now offered deal only with artificial lighting, not with daylight. They are not confined to any one illuminating agent, but deal with the subject broadly, since the laws of photometry are equally applicable to lighting by candles, oil, gas, electricity, or acetylene.

It is usual to express the intensity of any source of light in terms of “candle-power”—that is to say, by stating the number of standard candles that would have to be used to replace the source in question, if a light of equal intensity were to be produced at the place where the source is situated. This would in many cases be physically impossible; for instance, if an incandescent gas mantle is glowing with an intensity of 300 candle-power, it would be manifestly impossible to pack 300 standard candles together so that their flames should all be concentrated into the same space as that occupied by the mantle. When we describe such a source as of 300 candle-power all we mean is that its intensity is 300 times as great, or that it gives out 300 times as much light, as a single standard candle would do.

The bare statement of the candle-power of a source gives, however, no information upon another matter, viz. as to the illumination which the source produces upon a given surface, such as a writing table or a wall. That illumination depends upon the distance of the source as well as upon its intensity. If the source be itself of small dimensions, as compared with its distance from the surface, the numerical value of the illumination received by the surface may be calculated by dividing the numerical intensity of the source by the square of the number of feet that the source is distant from the surface (here assumed to be orthogonally normal to the direction of the light). The unit of illumination is therefore that amount of illumination afforded by one standard candle at a distance of one foot; and is commonly called one candle-foot (or sometimes one foot-candle). As an example of the calculation of illumination, we may give the case of a surface illuminated by a source of 100 candle-power set 5 feet away. Dividing 100 by 5 times 5, we get as the answer that the illumination received is of the value of 4 candle-feet, or four times as high an illumination that would be produced by one candle 1 foot away. Special instruments, known as Illumination photometers (or Lumeters) are used to measure directly the illumination received at any surface.

Too great emphasis cannot be thrown upon the practical importance of being able to ascertain (whether directly by measurement with such instruments or indirectly by calculation) the actual illuminations produced in various places. In a school, for example, the one thing that is most important to know is whether there is sufficient illumination afforded at the places where the scholars read and write, and at the place where the teacher writes on the blackboard. All the rest, the particular candle-powers of the sources, and whether they are electric or gaseous, is of as little importance as is the question whether the teacher travelled to school at forty miles an hour by train or rode at eight miles an hour in an omnibus. In public streets and squares, likewise, the real question for town councillors, for members of lighting committees, and for borough surveyors, as well as for the public is this: do the roads and pavements receive an adequate illumination? If they do, it matters not in the least, save as to the economic arrangement (which is a question of pure engineering), what the candle-power of the lamps may be, or what the nature of the illuminant. If the desired result—adequate illumination—is obtained, the consideration of the means whereby it has been obtained is a secondary question. Due illumination is an end to be attained: candle-power is a means of obtaining it. Whether that due illumination is better attained by a few lamps of great candle-power or by a larger number of lesser candle-power depends on the particular circumstances of the case.

But there is another point in respect of which the mere statement of the candle-power of a source gives no information, viz. the question of its intrinsic brightness, or luminosity. Suppose two lamps to be of equal candle-power—say a 10-candle electric fairy lamp, and the other an old flat batswing gas burner giving a 10-candlelight. Viewed from a distance of four or five yards one appears a brilliant

* A Paper read at the Conference of Educationists at the National Gas Congress and Exhibition on Saturday, October 11.

point of light, the other an object of appreciable size much less brilliant in itself. One will seem to cut the eyes much more than the other, though both produce equal illumination at the same distance. They will not seem equally bright or brilliant. The reason is that the images these lamps produce (at the same distance) on the retina of the eye are not of the same size. The image of the smaller lamp is correspondingly smaller than the image of the larger flame; and as equal amounts of actual light are received in the two images, one will be more concentrated than the other, and the nerve structures of the retina will be differently stimulated. There will be a strong stimulation by one lamp over a small patch of the retina, and a weaker stimulation by the other source over a larger patch of the retina. The eye, in fact, is physiologically disabled from being able to equate together two equally powerful lights if the concentration of their respective intrinsic luminosities is different. At the best the human eye is a very bad photometer. Its automatic adjustment which closes the pupil in the presence of a flood of light and opens it in twilight—a most invaluable provision of nature—works against it as a measuring instrument. And Fechner's law of psycho-physiology concerning the numerical relation between a stimulus and its resultant sensation, shows, once and for all, the impossibility of setting up the eye as a judge of photometric values. The one and only thing that the eye can do in this regard—and it is the principle of every photometer—is to draw a judgment as to the equality or non-equality of the illuminations on two adjacent patches of space in the field of vision.

This question of the intrinsic luminosity or brightness of lights has scarcely received the amount of attention it deserves. It is this which makes a naked or unobscured electric glow-lamp so unendurable to the gaze. It is this which leads people to put semi-opaque globes or shades round lamps to "diffuse" the light—that is, to make it seem to emanate as it were from a larger object; since, if thus diffused or spaced out, it no longer cuts the eyes, the retinal image being larger and less concentrated. But opal globes and ground-glass shades—to say nothing of devices of paper or silk—waste an unconscionable percentage of the light. Modern dioptric globes are far less wasteful: they spread the visible outline of the source, but with a minimum waste by absorption. The intrinsic brightness of different kinds of luminous sources is expressed scientifically in terms of candle-power emitted per square inch of area. The flame of a standard candle presents 0.4 of a square inch of apparent surface; hence its intrinsic brilliancy is about 2.5 candles per square inch. The following are some values for the intrinsic brilliancies of some sources:—

Candle	2.5
Argand Gas Flame	8.6
Incandescent Gas Mantle	80—250
Carbon Filament	50—200
Tungsten Filament	700—900
Electric Arc Crater	1,030

The higher the intrinsic brilliancy, the more unendurable is the brightness of any source. We know how blinding—how dangerous, in fact—it is to look directly at the sun. It appears to us as a round disc of the same apparent size as a threepenny-piece held at arm's length, glowing with light estimated at 200,000 candles concentrated in that small circle. But if we could diffuse it out to forty times its apparent diameter, and thus spread its light over an apparent area sixteen hundred times as great, its apparent brightness would come down to only 125 candles per square inch. The bedazzlement of the eye by lights which are highly concentrated is a very undesirable result. It reduces the power of the eye to see clearly other objects that may be within the same field of view. There are a number of kindred phenomena which result in interference with perfect or comfortable vision. A light that is too bright, whether concentrated or not, dazzles the eyes and causes discomfort in vision. Very smooth paper acts partly as a mirror, and reflects too much light at particular angles, interfering with the ability to see what is printed or written on it. Engineers give the generic name of *glare* to all these effects, and strive to avoid all causes of glare in their attempts to attain good lighting.

Another phenomenon which affects ease of vision is that of irradiation. In consequence of the imperfections of the lenses of the human eye, a bright point is never perfectly focussed on the retina as a point, but its image is a more or less blurred patch. A bright line is never focussed as a line of the proper width, but is always seen broader than it ought

to be. A bright defined area, such as a white circle or a white square on a black background, appears to be of larger size than it is owing to this defect of focussing, which makes the bright surface appear to encroach on its background. The converse happens with black dots, black lines, and black areas on white grounds. Black lines on white grounds always appear thinner than they really are: the light encroaches on the dark. This is the justification for using white chalk on blackboards instead of employing charcoal on whitened boards. The phenomenon also affects printed type. Types designed with thin vertical strokes are less legible than those with thicker, since they are printed in black on white. The reverse would be the case if things were printed in white on black. The makers of public advertising plaques and of illuminated signs know this, as shown by their preference for white or pale yellow lettering on black or dark blue grounds. The relative invisibility of thin black lines on white grounds is enhanced if the white background is very bright. This is one reason why printed matter on a shiny paper is so bad to read.

The good lighting of a room depends not only on the disposition of the lights so as to produce an adequate illumination, and on the proper shielding of the lamps so as to avoid needless glare, but on the nature of the wall-surface on which the light falls. Even when the illumination that is received by the walls is ample, the room may be badly lit, if the walls absorb too much of that illumination instead of giving it back by diffuse reflection. Few people are aware, what illuminating engineers know, how much light is thus wasted and thrown away. White cartridge paper absorbs and wastes about 20 per cent. of the light; a white-washed wall absorbs from 30 to 40 per cent.; an ordinary yellow or buff wall-paper usually wastes 50 to 60 per cent.; the deep scarlet and crimson wall-papers now fashionable for dining-rooms waste from 70 to 75 per cent.; brown paper wastes about 85 to 88 per cent. Clearly, for economy in artificial lighting and for comfort in the daylight lighting of large rooms, the ceilings should be invariably white, and the walls, if not white, should be of the palest tints.

During the last two years the Illuminating Engineering Society has had valuable reports prepared for it by three special Committees: one on Street Lighting, one on Library Lighting, a third on School Lighting. I will speak only of the last. They recommend that for ordinary work in reading and writing the minimum illumination at any desk should be not less than 2 candle-feet, some members of the Committee favouring a minimum of $2\frac{1}{2}$ candle-feet. For special work, such as drawing, stitching, and the like, the minimum recommended is 4 foot-candles. For blackboard illumination 2 candle-feet is admitted to be sufficient only for small class-rooms where the students are within 20 feet. The lamps for lighting the blackboard should be screened from the eyes to prevent glare. The Committee lays some stress on the use in general of shades or globes which diffuse the apparent brightness of the source over a considerable area so as to reduce what I have called the bedazzlement caused by lights that are too concentrated. It goes without saying that the Committee favours the use of indirect lighting in which the rays of the lamps are intercepted and thrown upon ceiling or walls only, so that a soft diffused light alone reaches the eye. The disadvantage of this method is that it is almost shadowless. For reading and writing this is good; but the visibility of solid objects and raised surfaces greatly depends on the presence of shadows, and for such a direct illumination is preferable. All school managers and school architects would do well to study the recommendations of this Committee.

HOUSING IN ST. PETERSBURG.

WITH the rapid growth of the population of the northern capital of Russia, which has now reached nearly 2,000,000, the problem of housing has become particularly acute.

Like most things in this country of contrasts, the difference between the palatial mansions for wealthy occupants and the houses occupied by the classes below is strikingly great. The illustrations reproduced in our July issue give some idea of the first. As to the second, suffice it to say they mostly consist of huge five or six storeyed blocks of flats, crowded together around innumerable dirty courtyards. They are badly lighted and completely lack any modern comforts. Many new houses have lately been built, but even these in respect of comforts fall much short of the English standard. With all this, however, house-rents have been steadily rising, making the inadequacy of the present condition of affairs felt with increasing force.

The St. Petersburg *Zodtchy* gives some interesting figures on the subject. It states that the average area per head of population in the different districts of the city in 1910 varied from 206 to 1,195 square feet. As compared with 1890, these figures show that whilst the central districts remained nearly stationary, the suburban districts doubled and even trebled their population. The over-crowding becomes even more apparent when the figures of the number of persons per house are considered. This number in 1890 was 8.1, and in 1912 was approximately 8.8. As compared with other great capitals of Europe these figures seem particularly striking. Paris has 3.27 persons per house, Berlin 4.27, Vienna 4.43, and London 4.50. Considering that the Russian tenements are much smaller than the English, the difference between these figures becomes still more significant.

Appalling as these conditions are, no one acquainted with Russian life and character will be surprised to learn that very little enterprise, either private or municipal, has so far been shown in combating the present state of affairs. Only during the last few years has a movement been growing to build houses on a co-operative basis. About ten societies are at present endeavouring to bring this idea to fruition. Their members, however, mostly belong to the middle and professional classes, and the houses they build are much above the means of the majority of the population. As a characteristic example of the work of such societies the following figures may be appropriately quoted here. In a house built by one of these societies one square foot of useful area entailed an expenditure of about 13s., and the cost of a flat of average size (2,250 square feet divided into six rooms) is about £1,394. Half of this sum has to be paid by the occupier on taking possession, the remainder being liquidated by annual payments of £42 10s., a similar charge being made for the upkeep of the house; the annual charge thus working out (allowing for the interest on the cash payment) at £128. Usually a house of this type costs £155 a year. The extravagance of this sum for such a small flat is the best illustration possible of the abnormal condition of the housing problem in St. Petersburg.

There are several factors in explanation of these high charges. During the last decade the wages in the building trade have risen on the average by 44 per cent. The cost of materials has also gone up considerably, so that, as a result of these causes, the building cost of a cubic sagan (343 cubic feet) is at present about 90 roubles (£9 9s.), as against 70 to 75 roubles (£7 7s. to £7 17s.) in 1903-4.

Another factor in the high cost of the houses is the rise of land rent, as to which, however, there is no exact data available.

It may be said that generally a house built for letting is expected to bring in 13 to 15 per cent. interest, and one built for sale 9 to 10 per cent.

THE TREES OF MANITOBA.

By R. H. CAMPBELL, Director of Forestry for the Dominion of Canada.

MANITOBA has not been looked on as a forest country, but it has always had a considerable area of forest, and since the boundaries have recently been extended a large territory has been added which is almost entirely forest land. The forest flora of this province is varied. At the south-eastern corner the red pine of Ontario intrudes intermingled with spruce, jackpine, tamarack, birch, and poplar. Along the valley of the Red and Assiniboine Rivers was a mixed forest of elm, ash, oak, basswood, and ash-leaved maple, where trees were found ranging to 24 inches in diameter. Rising like islands from the agricultural plains, tracts like the Turtle, Riding, Duck, and Porcupine Mountains bore forests of oak, ash, and poplar in the Turtle Mountains, and of spruce, jackpine, oak, elm, ash, poplar, and ash-leaved maples in the others. The character of the virgin forest may be seen from the following extract from a report of explorations made by Professor Hind on November 8, 1858:—"I beg to subjoin the circumference, five feet from the ground, of a few trees within fifty yards of our camp on the Riding Mountain: Aspen, 4 ft. 6 in., 4 ft. 6 in., 4 ft. 1 in., 5 ft.; white spruce, 7 ft. 3 in., 5 ft. 6 in., 6 ft. 6 in., 6 ft.; birch, 3 ft. 6 in., 3 ft.; poplar, 4 ft. 9 in., 4 ft. 6 in. These trees represent, as far as observations permitted, the general character of the forest on the summit plateau of the Riding Mountain."

Spruce, tamarack, jackpine, and poplar are useful for lumber and for pulp. The hardwoods may be the foundation for industries of great value. A more detailed description of each species and its possible uses is attached.

The Trees of Manitoba.

White Spruce (*Picea canadensis*).—This tree is found throughout Manitoba, usually in mixture with poplar, birch, balsam, and tamarack. In crowded stands it forms a long, clear, full trunk with short, compact crown. In 150 years on good sites it sometimes reaches a diameter of two feet and a height of ninety feet. The wood is tougher and more elastic than pine, and is gradually taking the place of pine for dimension timber, and, being non-resinous, tasteless, and odourless, is preferred for boxes and barrels for food stuffs. It is the best species for the manufacture of pulp and paper. Other uses:—Railway ties, building construction, flooring, furniture, poles, posts, &c. It is one of the most valuable timber trees of the Dominion.

Black Spruce (*Picea mariana*).—Found throughout Manitoba, it is usually confined to poorly drained areas, though sometimes mixed with the white spruce on higher ground. It is useful mainly for pulp, for fuel, and for fencing, though if it occurred of larger size, it could be used for the same purposes as white spruce.

Jack Pine (*Pinus banksiana*).—This is the pine of chief commercial importance to Manitoba, as white and red pine are found only in the south-eastern corner. It is fourth in quantity cut in Manitoba, being preceded by spruce, poplar, and tamarack. Jack pine is found throughout the province on sandy soils and reaches its best development in this province west of Lake Winnipeg, where it frequently reaches a height of from 83 to 90 feet, with 30 feet of a clear bole, but rarely exceeds 20 inches in diameter. Its best growth is made in the first seventy years. The best jack pine timber produces a good grade of saw and tie material. It is coming more and more into use for pulp, and may be found useful for paving blocks after preservative treatment.

White Pine (*Pinus strobus*) and Red Pine (*Pinus resinosa*) occur only in the south-eastern corner of the province, and are consequently of only small commercial importance to the province.

American Larch or Tamarack (*Larix americana*).—Tamarack is found throughout the greater portion of Manitoba, occurring in small pure stands of limited area, chiefly confined to peat bogs and muskegs, owing to competition with other trees. On high ground it grows well and at a much faster rate. It is of great strength, clear length and durability, and, having little taper, it is valuable for posts, rafters, fencing, and construction work generally. It is the most valued fuel wood in Manitoba, and is of great utility to the settler.

Balsam Fir (*Abies balsamea*).—This tree occurs extensively in Manitoba, and, being tolerant of shade and a prolific seeder, one of the forester's chief problems is to prevent it from driving out the more valuable spruce. The best of it is cut and mixed with spruce lumber, but it is primarily a pulp wood species, and is principally cut for this purpose, the long tough, colourless fibres being valuable for paper-making. From the blisters on the bark is obtained the balsam used in the manufacture of compound lenses and also for medicinal purposes.

White Cedar (*Thuja occidentalis*).—This tree is found only in the south-eastern portion of Manitoba, and at one spot on the west of Lake Winnipeg. It is seldom cut into lumber. The wood is soft and weak, but it is the most durable of the native soft woods, and hence is highly valued for ties, poles, shingles, fence posts and rails. Being light, durable, and easy to work, it has always been a favourite material for small boats and canoes.

Aspen (*Populus tremuloides*).—Aspen or white poplar grows everywhere, and only extremes of drought and moisture forbid its growth. Being easily worked, it is used considerably in the manufacture of woodenware and furniture. It is excellent box and slack cooperage material, is well suited for inside carpentry, and forms a durable flooring of snowy whiteness. It is also suitable for pulp, and is only second to spruce in the quantity used for that purpose. It makes good firewood, and is at present largely used for this purpose.

Balsam Poplar or Balm of Gilead (*Populus balsamifera*).—Locally this species is known as "Black poplar" and bears some resemblance to aspen, springing up with the latter on denuded areas. It is less subject to disease than aspen, but suffers more from other defects, and the wood, though somewhat stronger and tougher than aspen, is unsuit-

able for flooring, and as fuel is poor. Its chief value commercially will be for pulp wood.

Cottonwood (*Populus deltoidea*).—This species occurs occasionally in the river bottoms of Southern Manitoba, but is not commercially important.

Burr Oak (*Quercus macrocarpa*).—This tree is found throughout the greater part of Southern Manitoba in thickets and open forests, reaching a diameter of 12 inches and over along the Assiniboine River. The wood is hard, heavy, tough, and very durable, making ideal fence posts, ties, and piles. It is not used to any extent by manufacturers, but it might be made the basis of useful industries, as the agricultural implement and vehicle manufacturers of Manitoba import oak in large quantities.

Paper Birch (*Betula alba*, var. *papyrifera*).—This birch is found throughout the province in almost pure stands or mixed with white spruce and aspen. At present the best of it is cut for flooring, and its principal use is for firewood. The wood is white, hard, and close-grained, and is suitable for the manufacture of spools, bobbins, woodenware, furniture and interior finishing.

White Elm (*Ulmus americana*).—This species is found in the river valleys of Southern Manitoba, dropping out at the Red Deer River, but at its extreme limit it still remains a large and well developed tree. The wood is heavy, strong, and tough, and is used almost for every purpose for which hardwood can be used. A great deal is used for slack cooperage, furniture, boxes, vehicle manufacture, flooring, blocks for tackle, &c. Its principal use locally is for flooring.

Basswood (*Tilia americana*).—This tree is found in Southern Manitoba mostly in the river valleys, but is not found in large quantities. Its wood is white, light, soft, and easily worked, and is used for manufacture of small woodenware, cheap furniture, light parts of farm implements, carriage panels, &c.

Manitoba Maple or Ash-Leaved Maple (*Acer negundo*).—This tree occurs throughout the province as far north as the upper end of Lake Winnipeg. It grows very fast, but is generally crooked, and is not of much value except for fuel or as a shade or decorative tree.

Mountain Maple (*Acer spicatum*).—This has the same range as the Manitoba maple, but never grows to sufficient size to be of much value.

Black Ash (*Fraxinus nigra*).—This ash occurs in swamps and river bottoms of Eastern Manitoba. It can be stained to imitate plain white oak, and may be used for interior finishing. Lack of taste and odour makes it useful for food-containers, such as baskets, barrels, and boxes.

Red Ash (*Fraxinus pubescens*).—This tree occurs along the Assiniboine River and tributaries of Lake Winnipeg. The wood resembles that of black ash, and might in time be substituted for the latter.

Green Ash (*Fraxinus lanceolata*).—This species is found throughout the southern part of the province in the river valleys, but not in sufficient quantity to be of commercial importance. This is one of the best trees for planting in the shelter belt or wood lots. Its wood resembles white ash and might be worked up locally into frame work for vehicles and as handles for agricultural implements.

Parties interested can obtain Special Report 5 by addressing Chas. F. Roland, Commissioner, Winnipeg, Manitoba.

EXHIBITION OF PAINTINGS BY SPANISH OLD MASTERS AT THE GRAFTON GALLERIES.

It is difficult to magnify the privilege conferred upon a resident of London by the mere fact of being located in the midst of all the life and variety incidental to such a mammoth city. Not only is there the indigenous art of innumerable buildings rooted in the ground, but there are also the contents of lordly mansions, picture galleries and museums, stores of the wealth of nations and of objects tracing back to remote centuries of man's civilisation.

Amidst all these there is at the present time nothing to surpass in interest the collection of Spanish Art now on view at the Grafton Galleries. Bearing in mind that some dates back to the year 1250, there seems to be, however, something incongruous in the inclusion amongst Old Masters of anyone who died so recently as eighty-five years since (we refer to Goya), and how much more incongruous in the case of Eugenio Lucas, whose death occurred no further back than 1870 at the age of forty-six, and in the lifetime of innumerable readers of *The Architect*? The mere fact

that a brilliant artist is dead may take him into the ranks of deceased masters, but not necessarily into the better-known class referred to in the exhibition title.

However, that is not a matter of vital importance; it is the work, at last, that counts. Let us regard, in passing, two canvases by Francisco Goya; one, a portrait of his brother, we can sincerely admire, but if we were to judge this artist by the exhibits now shown we should not be inclined to rank him on an Olympus with Velazquez, Murillo, and many others. The portrait of the Duchess of Alba (181) is peculiarly lacking in grace; but, as in so many works by Spanish artists, what the picture wants in general attractiveness it possesses in the particular merit of admirably portrayed draperies.

It is with unrestrained pleasure that we direct our attention to the works of two such masters as Senhor Diego de Silva y Velazquez and Senhor Bartolomé Estéban Murillo, whose works here collected form more than one-quarter of the total exhibition. These two artists of the Seville School were contemporaries, the elder (Velazquez) having worked through his *Bodegón* series before the younger artist came prominently forward: good as these tavern-subjects are in many respects, we desire here and now to call attention to other works by this the greatest of Spanish artists. It may be premised that the attribution of many paintings is variously ascribed at different periods ('tis true, 'tis pity). The first upon which we will descant is even now only "attributed to" Velazquez—we refer to "The Dying Gladiator," recently discovered in Sweden; whoever may be the painter, too much praise cannot be accorded to the picture. It is one of a class—all too rare—that immediately fixes itself in every detail upon the mental vision: in this instance, with its pathetically drooping figure of one who has been "butchered to make a Roman holiday." In every line of the composition full evidence of the artist's sympathy with his subject is made manifest. The portrait of Don Francisco Quevedo (42) evinces vigorous portraiture in its zenith, and the artist may well have been but slightly over thirty years of age at the time; it is worth noting how the dark eyes behind the horn spectacles are portrayed. To the same period is attributed "The Angels Appearing to the Shepherds"—a large and attractive composition; though the angels themselves are unconvincing, the shepherds are lifelike. "A Sleeping Boy" (which has not only been attributed otherwise but has been designated as "A Sleeping Girl") is full of realism and charm, with a warmth of colouring truly admirable. In "Pope Innocent X." (59) the head is powerfully portrayed, whilst the colour of the robe is kept well subdued. In other ways the portraits of Philip of Spain (61) and "A Spanish Gentleman" (62) are clamant in the demands upon our attention.

And now let us regard some of Murillo's productions. "The Girl with a Basket of Chickens" is charming in its naturalness, but we find less pleasure in its neighbour, "El Pescaderito," where the flesh is too roughly textured. "A Poultry Yard" (5) is placed upon a screen in the central gallery *dos-à-dos* with "The Larder" (6), a work of somewhat similar nature, which has been regarded as one of Velazquez' *bodegón* works, and has also been ascribed to Murillo (amongst others). But "The Larder" is, in our opinion, decidedly inferior to "A Poultry Yard," where the various forms of animal life are realistically portrayed and in an excellent scheme of colour. "La Virgen del rosario" depicts the Madonna in a red robe and a Murillo-blue mantel; the sweet-faced woman contrasts favourably in expression with the uninspired child; the drapery is beautifully painted. "The Santiago Madonna" is, however, an absolutely charming work, with that human interest in both faces, the all too successful suppression of which interest in most canvases dealing with the subject has rendered the portrayal in general so insipid. In Murillo's painting note should be made of the graceful, well-shaped hands of the Mother of Christ and also of the richly coloured and well-massed drapery. "La Virgen de la Manzana" (154) is not up to the calibre of the work just described, but in "St. Joseph and the Holy Child" (166) we see a fine work where the Child's expression is all that can be desired. Tobar's copy of this picture (167) is by no means equal to the original. In "Christ After the Flagellation" there is a fine composition, but all too painfully realistic. "Faith Presenting the Eucharist" is highly decorative, and in every way praiseworthy. "The Prodigal Son Feasting" (80) cannot represent the young man of the parable, for the *mise-en-scène* and costumes are quite Western and relatively modern; the colour and composition are exquisite. But in No. 83, "The Prodigal Son's Return," the

treatment is fully scriptural, and to the good qualities just mentioned pathos is superadded. The same subject in No. 84 is far inferior except in regard to the colouring. Murillo's portraiture is something at which to stand and marvel, as witness Nos. 71, 100, and 141, and "The Portrait of a Girl" (106); the latter is quite a gem. It is, however, his auto-portrait (99) which reaches high-water mark, showing the artist at about the age of sixty; he has set the figure within an oval frame (in pigment), with the right hand resting thereon, and the naturalness is delightful.

We have left ourselves but little space to devote to other artists, and must do what justice we can within our limits, self-imposed though they are. Vicente Carducho (originally Vincenzo Carducci, an Italian), who became a naturalised Spaniard, is represented by one canvas (No. 1), his auto-portrait; it shows an unusual pose under such conditions, but is, of course, quite obtainable by means of arranged mirrors; it is a good piece of work throughout. Alexo Fernandez, in Nos. 8 and 11, is represented by two decidedly decorative *morceaux*, portraying SS. Gregory and Augustine and SS. Jerome and Ambrose respectively. Luis de Morales' "Christ Bearing His Cross" should certainly not be passed over in silence; the expression on the martyr's face is beautiful, and how vastly different to the work of Previati, such as we saw a short while since in England.

Alonso Cano (also of the Seville School) is a painter with a reputation that needs no emphasising, though his activities were not restricted to this Art. In "The Dead Christ" he is at a high level of excellence, the figure being pathetically depicted, but not so realistically as to be unpleasant. The unusual glow of colour given to the angel enhances the corpse-like appearance of the victim.

The painfully conscientious painting of drapery and jewels is a feature of Spanish art, and Pantoja is a notable revealer of this trait. Antonio Pereda's "Immaculate Conception" is very decorative, and attention is due to Francisco Rizi's "Belshazzar's Feast," though we look in vain for the writing on the wall; the grouping, the local atmosphere, the architecture, and the colour scheme are, however, all noteworthy. El Greco (otherwise Domenico Theotocopuli, a Cretan by birth), is very adequately represented, but he does not appeal to us; he had a curious mannerism of elongating the heads of his subjects, as though viewing them through a distorting mirror. But we note one fine exception in his daughter's portrait, wherein the face is rightly the centre of attraction, whilst the adjuncts also are all well portrayed.

Claudio Coello's "Saint Catherine of Alexandria" is very beautiful in pose, colour, and expression; this, too, may be said for Ribera's "Saint John the Baptist," and his "Inspiration of a Saint" (192) demands close attention for the perfect modelling of the hands and the pose of the head. Zurbaran (a close contemporary of Velazquez) has a fine piece of colouring in the "Holy Family" (186) and distinctly superior to his somewhat similar canvas (171).

As the exhibition commenced with an Italian-born artist in the person of Carducho, so it ends with an Italian in the person of Eugenio Caxés (or Cazes), whose sole representation is a painting of "St. Julian of Cuenca" (193). We are the first to recognise how inadequate has been our inspection of this marvellous show of Iberian art, and how far more inadequate is the interpretation of our views. Our readers will go and judge for themselves; and this is at last the object of an art critique of a worthy exhibition, namely, that it should act as a showman's trumpeter inviting the public to enter and inspect and to fill themselves with the joy of what has been hidden beyond the portals.

THE COTTAGE PROBLEM.*

By THOMAS POTTER.

THE object of this paper is not to put the writer forward as a supreme authority on how cottages should be built, or what accommodation they should afford, nor as the possessor of some occult knowledge concerning the erection of cheap cottages. Many have claimed these distinctions. My object is to elicit the experience of those who have been associated with the building of labourers' cottages in various parts of the country for years past, and, living in their midst, must know the requirements of the farm labourer.

The question of how to house the farm labourer at a reasonable cost has reached an acute stage.

The country is being drained of the best part of its rural working population from two causes—low wages and want of proper and sufficient dwellings.

With the former we have nothing to do, but we are interested in the latter in having erected many new cottages or reinstated many old ones. Books have been written, plans have been published, and meetings have been held, all with the one object of attempting to solve the enigma of how to build labourers' cottages that can be let at an economic rent.

The only persons who have nothing to say in the matter, but who sit on the fence quietly waiting developments or migrate to the large towns already overcrowded or emigrate to the Colonies, are the labourers themselves.

I am not going to exploit the feasibility of the £100 cottage; this has been done by many during the last fifty years. Only the exploiters seemed to have solved the problem, and then only in their minds, not in practice.

I tried building pairs of cottages half a century since, the plans of which gained a £50 prize for cottages to cost £200 a pair; but whether built of brick, stone, or concrete, the result was always the same—nearly £350.

Readers of and listeners to the exponent of the cheap cottage are often misled by the bare statement that a good cottage can be built, or has been built, for £100, or some other fabulous sum; and what I have just stated is a fair example of the result when attempts are made in that direction.

Government Loans.

The Local Government Board intend, it is said, to loan money for the erection of cottages only on condition that they measure 10,000 cubic feet; and this is usually what good cottages built in pairs or otherwise large landowners provide, but exclusive of outbuildings.

In this case the £100 cottage will be entirely out of the running. It has already given way to £150, and this promises to follow in the same direction and £200 take its place as a minimum if building materials continue to increase in cost.

I am afraid that Mr. Leo Strachey's laudable wish that means may still be found to provide a good country labourer's cottage for £100 will not be realised for many years to come, if ever.

By 10,000 cubic feet I am assuming that external measurement is meant, the height taken from top of foundations to floor level at 2 feet, and thence to half-way between wall plate to ridge, and that the height of rooms in all cases is 8 feet from floor to ceiling.

I believe the Departmental Committee of the Board of Agriculture, in their report on small holdings, took for the purpose of comparison 2 feet as the height from floor level to top of concrete foundation; but I submit that if the concrete is made with cement 1 foot is sufficient. At any rate, this has been my practice generally.

The rule to arrive at the cubic capacity by taking half the height of the roof is, of course, incorrect, but is a recognised custom, and is a simple process in calculating and comparing measurements, roofs not always being of the same pitch.

Conflicting Opinions as to Cost.

Much that has been read in the papers concerning the cost of cottages is of a conflicting nature—sometimes amusing and generally misleading.

These statements produce an infinite amount of mischief; they lead landowners to believe that their own architects or clerks of works are incompetent, so far as economical construction is concerned, to build cottages at the same price as others are able to.

Mr. Runciman stated in the House of Commons that he had seen a five-room and bath-room cottage near York, the total cost of building which was £89. A large landowner showed his surveyor the published plan and particulars of the cost, and asked for an explanation. The latter commenced by pointing out that the whole of the carting was put down at £1 4s. The owner required no further information.

Mr. Runciman at a later date said in the House of Commons that "a good cottage could be built for £150, and that he was not talking through his hat." Assuming this is practicable, some kind of outbuilding in addition is absolutely necessary, and drains—if any—fencing, footways, and water supply are all items to be taken into account when an economic rent is the object in view.

The Departmental Committee of the Board of Agriculture came to the conclusion, after examining a large number of

* A Paper read at the Holborn Restaurant before the Society of Estate Clerks of Works, on Oct. 14.

witnesses, that £150 was the minimum cost of a labourer's cottage, and one of the Committee has since stated that during their tour of inspection they found that in some cases the builders declined to build more for the same price; in others the builders became bankrupt, and others obtained gravel or sand near the site free, which elsewhere would cost 5s. a cubic yard, but for which they allowed nothing in their estimates, and these cottages could not be taken as examples of cost.

It is sometimes said that certain cottages have cost so much to build by contract. This statement may be correct, but it does not follow that it was the cost to the builder, which is quite another matter. Some small builders who are not adepts at quantity taking and estimating for new buildings arrive at the value in curious ways. On one occasion I asked a small builder who was not addicted to close calculations how he came to submit an absurd tender for some cottages, and his reply was that his brother knew a man who had built some very similar for the same money.

Statements of cost must always be taken cum grano salis unless there is an absolute certainty and a proof of their correctness. On one occasion I was told the low cost of certain cottages, and was offered the prime cost statement of expenditure. I found therein slates and other materials absent, and was told after that the cause for this had been inquired into and that they came from another job where they were not wanted, and, having been already paid for, could not be charged again. The owner was unaware of this.

Mr. Clare Sewell Read, a large landowner, and at one time M.P., wrote to the *Field* that he had erected a large covered yard, the dimensions of which he gave, at an absurdly low cost, and I was asked if I could build a similar one at the same price. I could not, but wrote Mr. Read asking if he would kindly supply me with some details of the cost. He replied that, unfortunately, when writing the letter he was unaware that his steward had not charged for the timber, which was cut down on his own estate, nor the carting, which was done by the estate horses.

Cubing the Contents.

The custom to calculate the approximate cost of buildings at so much per foot cube is, at its best, only a speculative method, and may be described as scientific guesswork. The cost of cottages only a few miles apart may be widely different. Some may be near a brickfield, quarry, lime kiln, sandpit, and railway station—an unusual combination, I admit; others may be distant from either, and this makes all the difference. The weight of bricks, lime, and sand for a pair of cottages approximates alone to 100 tons, and stone to more. This shows what an important factor in cost haulage means, an item which, when cheap cottages are under discussion, is often altogether ignored. The result is that the cost cannot be standardised; it is a question of locality.

For cottages of an unpretentious character 4d. per cubic foot seems to be the recognised estimate, and if we take the Board of Agriculture's view of the minimum amount of capacity which the Local Government Board may insist on in the case of loans—10,000 cube feet—the cost would be £333 a pair, to which has to be added the cost of the land, drains—if any—fences, and water supply, so that possibly a total expenditure of £400 would be near the mark.

Accommodation.

There is no great divergence of opinion as to the accommodation a labourer's cottage should afford, although more seems to be considered necessary in the north than in the south of England, not in the number of rooms but in their area. In the south the living-room, or kitchen, as it is called in the north, averages 14 by 12 feet, including chimney breasts, or 160 to 170 superficial feet; the scullery, 12 by 10 feet; larder, 7 by 6 feet; and lobby, or passage, sufficient only to allow for the doors leading therefrom, about 6 by 4 feet. The scullery may be considered too large, but it is the wife's workshop, and although a smaller one is sometimes advocated to compel the family to occupy the living-room for meals and not make it a parlour, it may happen that the family is a small one, and the wife prefers to keep the living-room tidy for her husband after he has finished his day's work, and on Sundays. It seems a little unreasonable that tenants should not be allowed to make what use they like of their rooms, if with a view to their own comfort and convenience. If, however, the scullery has to be used as a wash-house as well, and to contain a copper and a bath, 12 by 10 feet is none too large.

And three bedrooms are a necessity, occupying together the same area as the ground floor.

To obtain this amount of space—if the outside walls were 11 inches hollow brick—a pair of cottages would require to measure 36 by 24 feet approximately, and taking the mean height—if all rooms were 8 feet from floor to ceiling—from 2 feet below ground floor to half the height of the roof at 23 feet, we should get 9,936 cube feet each cottage. If, however, the copper, the bath, coals, e.c., and many other *etceteras* are to be found room for and taken out of the scullery and larder area, a good cottage otherwise is spoiled.

An independent outbuilding either attached to but not opening into it, or some distance therefrom, is the most valuable asset to a cottage. It should form the wash-house and contain the washing boiler and bath, and provide room for the wheelbarrow, perambulator, garden tools, washing tubs, winter potatoes, paraffin can, pig meal if a pig is kept, and other things which otherwise have to be kept in the scullery, in the larder, and under the stairs, while the bath will be packed to its full. If only on hygienic grounds, most of these things are better away from where food is prepared and people live a great part of their time, and entirely separate from the cottage itself. The outbuilding should comprise also a fuel house to hold a ton of coals and an e.c. or privy at the extreme end, altogether forming a building about 16 by 9 feet out to out and costing, at say 3d. a cube foot, about £20, or with fittings, including boiler and bath, £24, equal to a rental of about 6d. per week.

Unlike a town where coals can be purchased by the hundredweight, the cottager has usually to buy his by the ton. It is often the practice for his employer to haul them free when his wagons return empty from taking corn to market or to the railway station.

We know, of course, that cottages in towns do not contain the accommodation described, but the conditions are altogether different. Food, fuel, and other necessities can be purchased near at hand; in villages remote from towns it is otherwise, and owing to the high price of land in most towns, cottage accommodation and the outlay on the buildings have to be restricted to compensate for its cost, and even then, with a rental of 4s. to 5s. a week, return but a small interest on the outlay. The agricultural labourer with his present wages is unable to pay more than half that amount.

Plan.

It is more economical to build cottages in pairs than singly, and still more so to build them in blocks, but there are objections to the latter in country places, and in a general way pairs are more often adopted.

A square plan, all sides being equal, is the best for a single cottage; it reduces the amount of external walling and internal wall plastering to a minimum, but is not so well adapted for a pair of cottages as an oblong or parallelogram. The latter admits of better internal arrangements and lessens the span of the roof. Where the frontage is equivalent to four and the depth to three or thereabouts—that is, if the frontage measures, say, 36 feet and the depth 24 feet approximately—we get the best results. As an instance of how deviating from a square plan affects the amount of external walling, 36 by 24 feet takes about 12½ per cent. more than a square plan with a similar area, and 52 by 16½ 20 per cent. more, although the same area. Many of the cottages erected by owners of large estates who possess the means and inclination to make cost a secondary consideration must not be taken into account when dealing with the cheap-cottage problem. I know an agricultural village where the cottages are built in pairs, each cottage having hot and cold water supplies, bathroom, and a quarter of an acre of garden; the cost per pair of cottages and fences was £800, and the rent is 1s. a week.

On the other hand, there are many owners, not millionaires, who possess only a life interest in their estates, but who recognise the necessity of properly housing the labourer. The cheap cottage, were it obtainable, being the only remedy.

I knew one who said, "My predecessors saved their money and did not improve their estates; I must either build a limited number of cottages with some pretensions to appearance, or a larger number containing similar accommodation, but with no regard to appearance." He chose the latter. He was probably of the same opinion as Lord Brassey with regard to ironclads, who once said in reply to a remark that they were specimens of ugliness that

"the beauty of a thing consisted in its best adaptation to the purpose in view."

Many old picturesque cottages are only so by reason of the walls being covered with evergreens or flowering plants, which, if stripped, would disclose only rough, plain walls with stone mullion windows and lead casements. The latter will never form an item in cheap-cottage construction, and so Nature must be left to do its best, in the way of appearance, to new ones as it has done in the past to old ones.

(To be continued.)

TOWN PLANNING.

In the section devoted to municipal engineers and surveyors at the Royal Sanitary Institute Congress at Exeter on July 8 the question of "Town Planning" was considered.

Mr. John S. Brodie (Borough Engineer, Blackpool), who had arranged to open a discussion on town planning, was unable to be present, but sent a communication in which he said that the Housing and Town Planning Act, 1909, had now been in operation about three and a half years. According to the latest information issued by the Local Government Board, the following results appeared to show to what extent Part 2 of the Act, "Town Planning," had been operative—viz.: Number of schemes made and submitted to the Board for approval, four; number of schemes authorised to be prepared, thirty; number of applications to prepare schemes, eleven; number of schemes under consideration, 120; total number of schemes, 165. At first sight it might appear that the beneficial results anticipated when the Act was passed had not been realised, but it must be evident that the many and varied interests involved in the simplest planning scheme required much time, earnest labour, tact, and patience to bring it to a successful conclusion. It was probable that many schemes would not yet have come under the notice of the Local Government Board, such as two schemes they were maturing at Blackpool, which would, in all probability, go through by agreement, and without the machinery of the Town Planning Act. It must also not be forgotten that the Act aimed at improved housing conditions primarily, often necessitating extensive and costly demolition of congested central areas, which, however desirable in itself, was very properly the subject of careful and far-seeing consideration on economic grounds. It was to be regretted that discussions at meetings in connection with town planning too frequently ran in the direction of impracticable and visionary "garden cities" in which presumably "the wicked cease from troubling and the weary are at rest," whereas much more solid and rapid progress would be made if, instead of soaring too much into the realms of imagination, they kept on the firm ground of hygienic and economic facts. He therefore suggested that the discussion at their conference that day should start and keep on practical lines, such as (1) the importance of direct roads from centres of districts to the outskirts, whether the lay-out be radial or rectangular; (2) the importance of wide main building lines (not less than 120 feet) rather than wide streets in such direct roads; (3) the importance of adapting any system of laying out roads to the natural configuration of the land, and consequently promoting good and economical sewerage; (4) the importance of making the "plan" capable of satisfactory expansion in the future into undeveloped suburban areas; (5) the importance of constantly bearing in mind that what was known as the housing problem would certainly in the near future press more and more for solution on purely economic grounds, having regard to sound hygienic conditions. He suggested that the discussion take the general lines which he had indicated rather than such details as road-making or the number of houses per acre.

Mr. E. G. Mawbey (Borough Engineer, Leicester) said they had a good many papers on town planning from the aesthetic point of view, and many details on road construction, but they had to look at the matter from the really practical point of view. They as surveyors should make up their minds as to what steps they should take. The view which he held very strongly was that if they were to hold their own as surveyors and leaders in this great movement every local surveyor should, without delay, prepare a plan showing a scheme of radial and main roads which in his opinion was most suitable for his district, and also the

widths between the building lines. In doing this he trusted they would be able to avoid those vast expenditures which local authorities were having to incur in all their big towns and in many of the smaller ones to remedy the mistakes which had been made in days gone by. He had read the resolutions of the Road Congress, and the first was to the effect that as a general principle it was better that new main roads should be constructed to pass outside rather than through towns. That, he thought, could be carried too far. They not only wanted to pass the enormous traffic through the country, but they also wanted their towns to benefit from this vast traffic. They wanted to improve their towns so as to induce these travellers to call and assist them, and they should provide for their centres becoming important centres not only for traffic, but of industries. As surveyors they must take a broad view, and he believed the day was coming when they would have to look at the question of main roads more on the lines of the great railways of the country, and they would have to see how they could increase and improve the main radial roads through the suburban parts of their district. He thought that no branch of the profession was more capable of working out this problem than the municipal surveyor. He knew there were experts in town planning, but he thought the foundation of the whole thing could be better laid out by the municipal surveyor than by any other branch of the profession. At Leicester they had not attempted to face the very difficult problem of preparing a town plan and going in for the powers of the Local Government Board, and they were not all in a position to be able to do so, for if they began to do so they might put their local authority in for very great expense. He did not say that was not the right thing eventually, but he did say the first thing was to prepare a town plan of their own, so that when plans were submitted for the development of estates they would have something to work on. In Leicester he had prepared a large cartoon plan dealing with it in this way. As an old Roman city they had difficulties, but their present idea was to induce the main through traffic to go through Leicester so far as they could accommodate it, and so far as they were not able to do it, then they must provide other roads. Mr. Brodie spoke of the importance of main roads from the centre of the district to the outskirts, but if as surveyors they were to come to the front they must not confine themselves to their own towns, but look to the communications with other towns. As to the width of roads, 120 feet had been suggested. He had in his mind one road in Leicester where twenty-five years ago the main building line of the villas was set back 50 feet from the road, and he lived in one and it was very nice. Those, he thought, were the lines they should develop on. He thought they must take up town planning for the love of it, and devote their best energies and ability to the work. At the same time there need be no jealousy about it, for there was plenty of scope for the specialist and architect to come along and design the layout of estates and buildings. The only way in which they could bring about a great success was to welcome the assistance of all who could render valuable help in this important movement for the benefit of mankind.

Mr. Munce (Belfast) thought that the question of radial roads was one they must take into consideration very earnestly, for everyone wanted to get about quickly at the present time. At Belfast they had one centre for the town, to which every tramcar came, and the roads spread out like a spider's web. That he considered one of the best ways of town planning. He thought they ought to look well ahead and lay out the lines of the streets and of the main sewers at the same time, for every town was best drained by gravitation. In his town they had to build 1,000 houses a year to meet the needs of the population, and every surveyor knew how his district was growing and the number of houses likely to be required. The idea of taking the main roads outside the town was absurd, and the tradespeople who would have to find the money would certainly object, for they liked a block in the traffic.

Mr. C. Brownridge (Birkenhead) said many of the things touched on by Mr. Brodie were absolute facts, which every engineer had to consider if he was dealing with the Town Planning Act. Every engineer was in agreement as to the wisdom of widening roads, but not as to what the width of the roads should be. They must remember that in a few years many of their rural areas would be urban, and provision should be made for that. But there was one difficulty in that connection which they must face, and it was

that the urban districts were surrounded by rural districts which had neither the money nor the inclination to deal with town planning, and if urban districts wished to lay out good roads, with the intention of connecting through to other districts, they met with great difficulty as soon as the rural area was reached. In that connection something would have to be done by Parliament to extend the operations of the Town Planning Act. On the question of whether the roads should be radial or rectangular, in Birkenhead they had a rectangular lay-out, and it was not effective—they wanted a combination of the two to get good communication. They had to remember that workmen had to be housed reasonably near their work, and consequently must consider how quickly they could get them to their work. Many people had said the solution was by taking work-people three miles into the country, but if a man had to get to work at six o'clock in the morning he wanted to live nearer to it, and he ventured to say that workmen wanted a house near enough to enable them at midday to go home to a well-cooked meal. The right way to do it was as was done at Port Sunlight. What they found in Birkenhead was that they would have to be fairly generous in their interpretation of the Town Planning Act, and that in conjunction with town planning, they would have to have considerable improvements carried out. The principle generally was to set the building line well back from the centre of the street. He would give one word of warning. In the garden suburbs it was a common thing to allow *cul de sacs*, and those who were associated with old towns knew the difficulties in connection with the courts allowed in days gone by, and how difficult they were to light and watch.

Mr. A. J. Redfern (Honiton) asked to put the case of the rural district. In his district there was a main road, and now was the best opportunity for widening it, but those who would get the advantage of the widening were the adjoining urban areas, who would inevitably annex the area in time to come. When they were inclined to speak slightly of the rural areas they should bear in mind that they had their difficulties as well as the urban areas. Mr. Brodie had referred to the importance of adapting any system of laying out roads to the natural configuration of the land, and it was by the rural councils who controlled the land around towns taking it in hand that it could be brought about. They often found difficulties owing to the building taking place first and the sewage scheme coming afterwards, and in a town planning scheme the best thing was to lay out the sewage scheme first. Unless that was done, building would take place in such a way as to render sewage works by gravitation impossible. When a 1d. rate produced £20 it was impossible for a district to spend much on roads, and he was bound to say the expense of main roads ought not to be placed on rural authorities.

Mr. S. Hutton (Exmouth) claimed that his town was the first to start town planning in Devon. He understood Mr. Munce to say that all towns could be drained by gravitation, but in Exmouth the problem was one which no engineer could get over unless he could build the town up 20 feet.

Mr. Munce said he did not mean that they could take all their drainage to one point.

Mr. Hutton said he thought it wanted the hard sense of the municipal engineer to set against the artistic ideas of the architect, which often spoilt good development.

Mr. Garrett (Torquay) said he agreed that if they could get their town councils to come with them every man could prepare a scheme, but the difficulty was to convince the councillors that the engineer did not want to increase the rates. Many town councillors simply thought it was a fad of the surveyor who wanted to do what other people were doing.

Mr. W. H. May (Plymouth) said that, as an architect, he came with the idea of picking up a few wrinkles as regarded town planning, but so far he had not. The great difficulty which faced his profession was that, as a rule, they acted for the landowner, and they were not called into consultation with the engineers connected with these town-planning schemes. He thought it would be a good service to all parties if the architects were recognised to some extent in the matter. The idea of making roads 120 feet wide appeared to him to be preposterous, seeing that houses had to be set back a tremendous distance nowadays to avoid the discomforts caused by the noise of motors and the dust.

Mr. Whittaker (London) pointed out that in large towns it would be difficult to say what was the centre, although they might say central areas. The craze for wide roads

might be overdone, and they must remember that the best shopping centres were in the narrow streets.

Mr. Mawbey said he had nothing but the greatest respect for the architects. They wanted the two professions to work together, but the municipal surveyors must do the fundamental part.

L.C.C. SCHOOL BUILDING.

Elementary and Secondary Schools.—Work is proceeding in connection with the erection for the London County Council of eleven new elementary schools and one new secondary school, and the enlargement of five elementary schools and two secondary schools. The total additional accommodation thus provided will amount to 10,537 places at an estimated cost of £269,448. Three schools are being structurally improved by the provision of halls, &c., at a cost of £41,325, and twelve schools are being rebuilt at a cost of £196,236.

Training College, &c.—The erection of the Furzedown Training College and hostels (Wandsworth), of hostels in connection with the Avery Hill Training College (Woolwich), and of a new trade school for girls in connection with the L.C.C. Hammersmith School of Arts and Crafts (Hammersmith) are in progress, the amount of the accepted tenders being £47,488, £42,141, and £19,154 respectively.

Special Schools and Centres.—Four special schools and two handicraft centres and a gymnasium are in course of erection, the total estimated cost of the work being £39,178.

Minor Works.—In addition to the tenders referred to above, the London County Council have entrusted to local contractors the execution of minor improvements to the estimated value of £4,817, and of heating works to the estimated value of £6,088. They have also authorised the invitation of tenders for improving the heating arrangements at five schools, and for carrying out minor works at three schools. Electric lighting work at two technical institutes, one secondary school, and two elementary schools, and the installation of fire-alarm bells at one elementary school and one industrial school, are being carried out by the direct employment of labour, under their direction, at an estimated cost of £395.

Proposed Schools.—Preliminary plans have been completed for the following: Sudbourne Road, Norwood, for 964 children; Sebbon Street, Islington, for 868 children; Exmouth Street, St. Pancras, for 996 children; Winchester Street L.C.C. infants' school, Finsbury, for 420 children; and enlargement of Northwold Road school, Hackney, by 512 places.

A CHILD-ARTIST AT THE DUDLEY GALLERIES, LONDON.

THIS is the day of infant phenomena; so much so, indeed, that they almost cease to be phenomenal, and it is the adult member of Society who will shortly claim consideration for exceptional powers. But in the case of little Daphne Allen, the rare gift of a tender imagination combined with a dainty and delicate mode of delineation elevates her to a position apart from other youthful aspirants to fame. We are not in accord with the suggestion thrown out: "Before looking at the pictures please forget that Miss Daphne Allen is a girl of fourteen, or imagine that she is an old gentleman of eighty." On the contrary, we think that the young artist's age should be borne in mind, as being explanatory of the general tone and tenour of the exhibits. She revels in a land of imagination, peopled by elves and spirits, where mere plant-life and Nature are accidents, which are to be interpreted in the figures of the "little people." It is not with Daphne Allen as with Peter Bell:

"A primrose by a river's brim,
A yellow primrose was to him,
And it was nothing more."

Naturally, a good deal of the work is sketchy, and equally naturally an art critic will find scope in a collection of one hundred and fifty works of indulging in varied criticism. But we are more desirous of dwelling upon the merits, merely expressing here a hope that the artist's undoubted genius will not be in any way spoilt by *injudicious* Art education. She can at times be bold, instead of delicate, as witness "Torchbearers of the Sunset," and such sepia studies as "Evening Shadows," "View near St. Ives," and "The Pirate Ship." Attention should be directed to her scissors and paste subject, "The Indian Camp"—a silhouette cut out in brown paper without previous drawing, and a particularly

clever little piece. Her designs for altar-pieces are certainly not commendable, but in general her interpretation of the underlying human phase in Christ and the early saints, as contrasted with their semi-divine attributes is unusually charming, and Miss Daphne could give points in this respect to many an artist of established fame. Let us, as instances, refer to "The Boy Christ" (87) and "Angels Offering Flowers to Christ." Reference, too, may well be made, by reason of its charm, to "Angels Bringing Children to Paradise."

We had better stop here, otherwise we shall be regarded as worshippers at the shrine of precocity, which would be a grievous misconception; but "we needs must love the highest when we see it," and genius is of the highest, though a child's work may not be the highest expression of which genius is capable. That will come with the passage of the years, and with patient study upon well-organised and well-directed lines.

ETCHINGS AND ENGRAVINGS BY AUGUSTE LEPERE.

LONDON welcomes a good exhibition of works by a foreign artist, and in these etchings and engravings by M. Lepère, on view in the Rembrandt Gallery in Vigo Street, Mr. Robert Dunthorne may be congratulated upon securing a first-rate collection. Undoubtedly the best are those portraying ecclesiastical edifices—we refer to "L'Inventaire, Amiens," "La Cathédrale, Rheims," "La Cathédrale, Rouen," and "L'Eglise St. Ouen, Rouen," the last two being wood engravings; they are marvels of patient drawing, and so delicate and minute is the execution on the wood that the effect is as of wash-work. Rouen and Rheims Cathedrals are the very finest, but collectively of all four it may be said that they are second to none. Work equally effective is noticeable in "La Rue des Barres, Paris," "Petit bras de la Seine, au Pont St. Michel," and "La Source," the last named being highly pictorial. M. Lepère shows three, if not more, styles of technique; one (which we do not appreciate) is rough, even harsh, in the final effect, as in "L'Abreuvoir" (19 and 31) and some others, evincing a lack of sympathy in the treatment. But on his normal level and also at his best, the artist is very good indeed. "Paris sous la Neige" is a clever wood-engraving, and "Clisson" is one of the very good sketches, all qualities considered. M. Lepère's human figures are often uninteresting and sometimes woefully out of drawing, as in "La Foire—St. Jean du Mont," "La Bourrine aux cinq-z-enfants," and "Bourgeoises à la Campagne"; nor is "Débardeurs, Quai de la gare," an interesting style of work. But we must note, as being specially worthy of attention, "L'Ondée," "Chau-mière à Rousseau," "Chemin dans la Marais—Coucher de Soleil," "La rue de la Montagne, St. Geneviève, Paris," "Marchandes de poisson—rue Pirouette," and "Ramasseurs (sic) des Pignons." But the works noted above by no means exhaust what is worthy of close inspection.

BRITISH FIRE PREVENTION COMMITTEE.

THE Earl of Lonsborough, K.C.V.O., Mr. Horace S. Folker, F.A.I. (Hon. Treasurer), and Mr. Ellis Marsland (General Hon. Secretary), on behalf of the Council of the Committee, received a number of members and visitors at the Regent's Park testing station on Wednesday, October 15, when the committee's winter session was inaugurated with a series of three high temperature fire tests dealing with partitioning materials and with a reinforced concrete floor.

There was a large attendance of representatives from the Government Departments, such as the Admiralty, War Office, Post Office, also from the London County Council, from the municipal authorities, railway companies, and insurance corporations, as also a number of leading fire brigade officers.

The tests with the partitioning materials were for thirty minutes and forty-five minutes, whilst the tests with the floor was a four-hour test.

The testing arrangements, which were under the direction of the General Hon. Secretary, were conducted by strong sub-committees under the committee's usual procedure, and official reports on the results of the tests will be issued in due course.

There was an interesting collection of fire extinguishers which had been under test on view in one of the committee's rooms.

ECCLESIASTICAL ARCHITECTURE IN CENTRAL ITALY.

By T. FRANCIS BUMPUS.

Author of "The Cathedrals and Churches of Northern Italy," "The Cathedrals of England and Wales," "London Churches, Ancient and Modern," "The Cathedrals of Northern France," &c.

(Continued from page 295.)

It may be observed that the architectural character of San Miniato is rather Roman than Byzantine, and more analogous with the types originated at Lucca than with any others in Tuscan regions; and that the style of the eleventh century in the old sculptures is apparent in an eagle and a small stunted figure in monastic costume on the marble pulpit that forms part of the screen before the presbyterium. Other figures in relief, alike quaint and ill-proportioned, with arms extended in prayer, on an upper storey of the façade, seem attributable to about the same date. The peculiarly Tuscan ornamentation in inlaid marbles, dark green and white, entirely covers this façade, which has neither portico nor columns, but only a blind-arcade with half-pillars carried along the lowest storey and seems altogether deficient in relief, being rather reminiscent of cabinet-work, and as hardly corresponding to the grace and majesty of the interior. Above the pediment of its central window is a mosaic of Our Lord enthroned between the Blessed Virgin and San Miniato, who offers a crown (restored)—a group of Byzantine character. The expression of the principal figure is severe, even to repulsiveness, while that of the saint is quite feminine, as also is his costume.

Very impressive, grave and yet rich in aspect is the interior of San Miniato as viewed from the entrance by the central of the three doorways, comparatively little having been permitted to interfere with the olden solemnity of its architectural character.

The church consists of a nave and aisles with a small semi-circular apse. The whole length of the church is divided into three parts by primary piers, which are four half-circles set on a square in plan, and sustain large segmental arches transversely spanning the nave and aisles. Each intermediate space is occupied by three round-headed arches springing from cylindrical shafts, to which the east and west half circles of the primary piers serve as responds, while the north and south ones, rising up beyond the lower capitals, sustain only the great transverse arches. Over these arcades is a high clerestory-wall pierced with nine small round-headed windows, three in each compartment, and one over each arch. The piers are mostly of masonry, but some are marble monoliths, with ill-fitting Corinthian capitals, probably of Roman work. Some of these capitals are Classic, while others betray a decadence in their chiselled foliage.

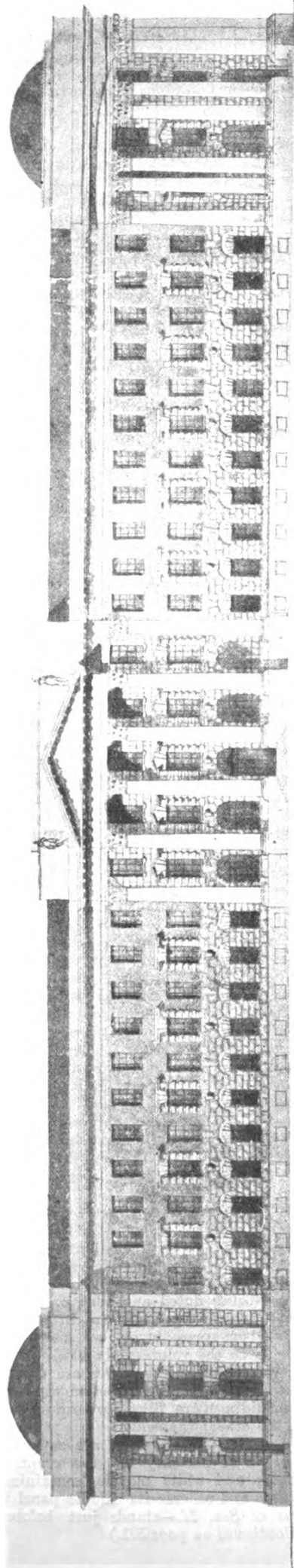
The arches that span the interior are adorned with the usual marble inlaid work, and above them the gabled roof of low pitch is left, as from the first, with the rafters exposed. The whole of this woodwork thus visible is painted in diaper to imitate the original ornamentation, but less rich in tone and on a less appropriately tinted ground than it was before the restoration of 1856-67. There is, I believe, no reason to doubt that the introduction of the flat ceiling, with coffers and rosettes, as now seen in Rome, is a Renaissance departure from the ancient *norma*; nor that the original basilica roof had the rafters exposed, though certainly not left without decoration. Some are of opinion that though the rafters were bare the naked roof was not seen beyond them, the woodwork being covered with gilt plating of metal.

The eastern part of the church is raised by sixteen steps over a crypt, or confessionary, which is a few feet lower than the level of the nave. It is divided into seven aisles covered with groined vaults having visible vaulting arches. The capitals of the shafts, which are all cylindrical monoliths of marble, some being fluted and very probably used up again from some ancient building, are in some cases composite. One of them presents on one side the mere outline of the ovolo, with the volutes only blocked out and plain, stiff leaves; on the other the leaves are fully developed, and the volutes (between which runs an egg-and-dart and bead-and-reel moulding) are filled by roses executed with some care like the other ornaments.

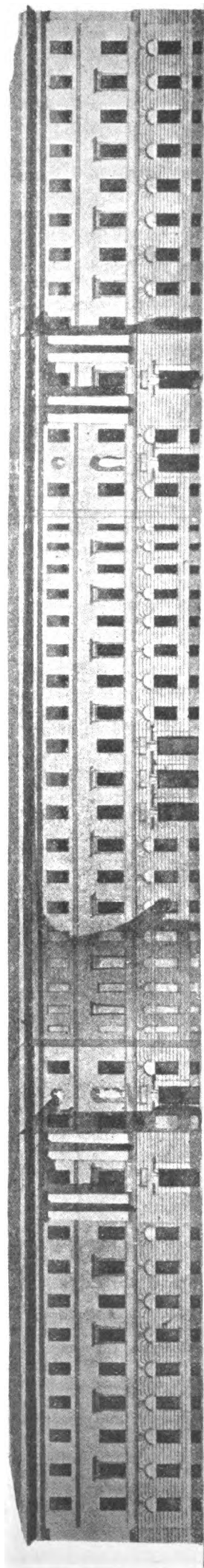
The larger piers of the upper church are supported by great cylindrical masses of masonry in the crypt. An ancient altar of black and white marble, containing the relics of San Miniatus and others—its middle panel is inscribed *S. Miniatus et Soc. M.*—stands just before the

(Continued on page 391.)

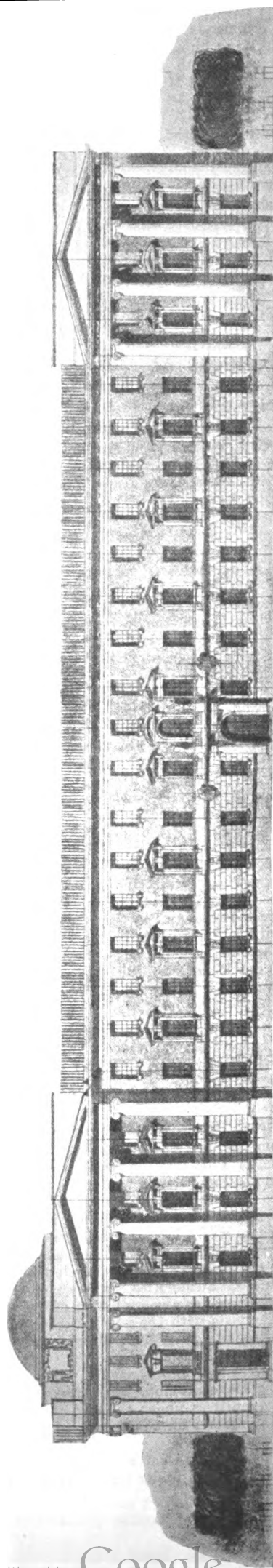
COMPETITION DESIGNS FOR OFFICES OF THE EMIGRATION BOARD, OMSK, SIBERIA.



FIRST PREMIATED DESIGN.—By Messrs. GRINBERG & DOUBINSKY.



SECOND PREMIATED DESIGN.—By Mr. SERAPHIMOV.



THIRD PREMIATED DESIGN.—By Messrs. GRINBERG & DOUBINSKY

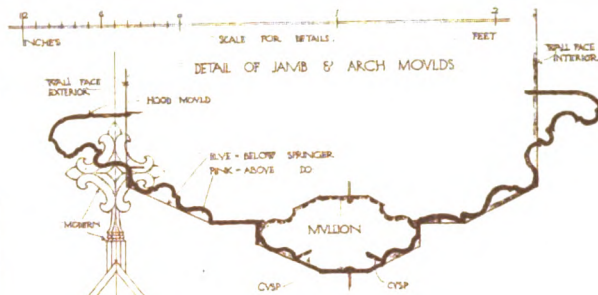
[From *Zodchy*.]

[From *Subcity*.]

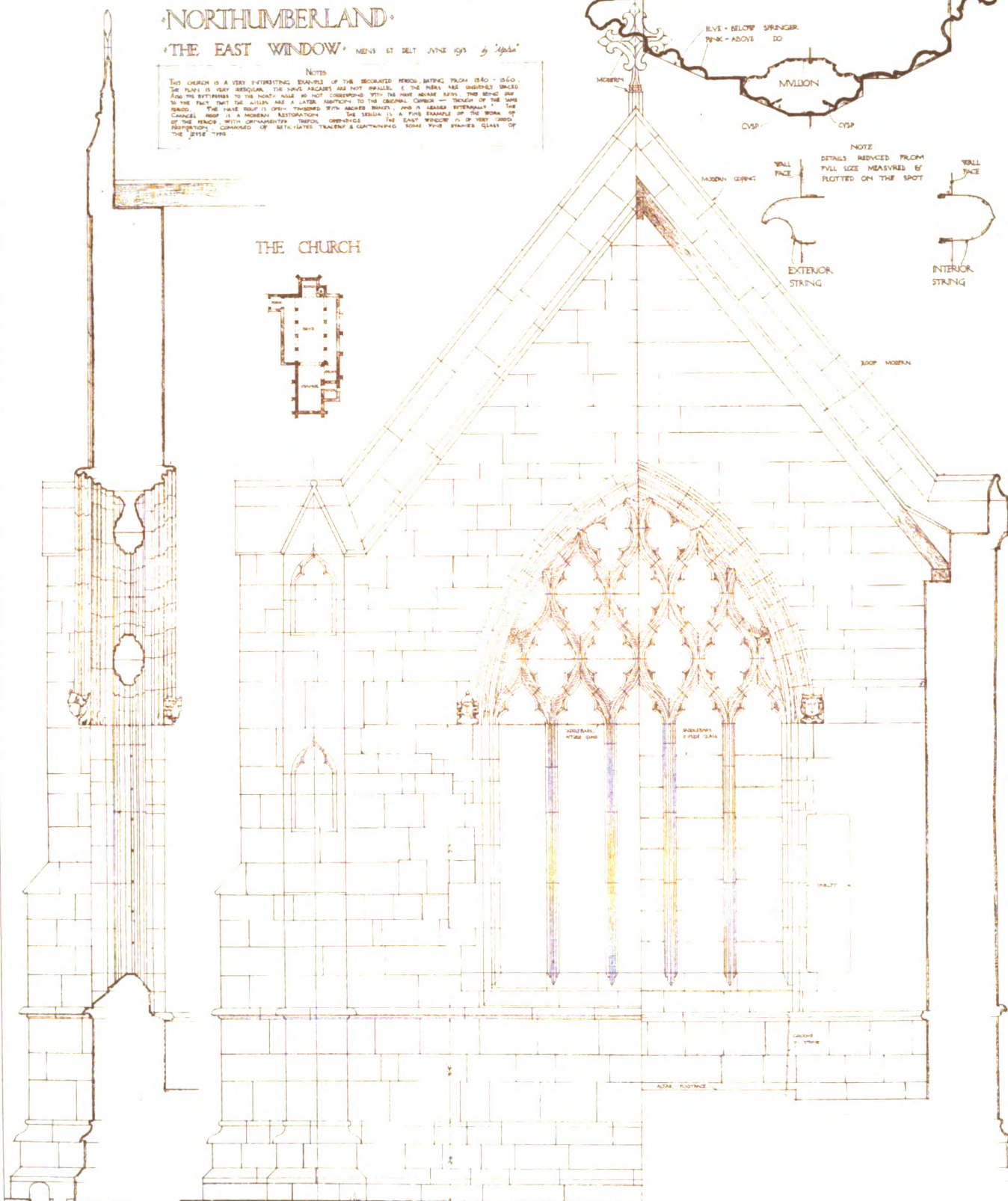
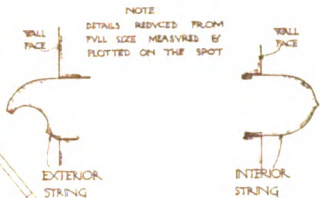
BY SEYMOUR CHURCHMAN & DOUGLASS

CHURCH OF S MARY MORPETH NORTHUMBERLAND THE EAST WINDOW. MEAS. BY DELT JUNE 1913 by "Alpha"

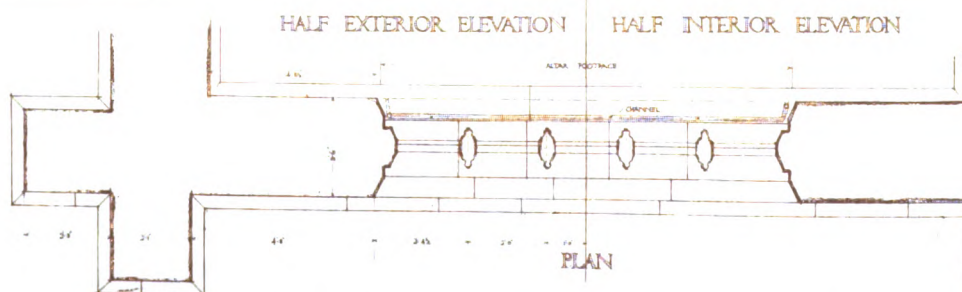
NOTES
THE CHURCH IS A VERY INTERESTING EXAMPLE OF THE SECURATED PERIOD, DATING FROM 1550 - 1560. THE PLAN IS VERY REGULAR. THE CHURCH HAS NOT BEEN REBUILT, & THE PERIOD HAS REMAINED UNCHANGED. THE EAST WINDOW IS THE MOST INTERESTING PART OF THE CHURCH. THE EAST WINDOW IS THE MOST INTERESTING PART OF THE CHURCH. THE EAST WINDOW IS THE MOST INTERESTING PART OF THE CHURCH.



THE CHURCH



SECTION

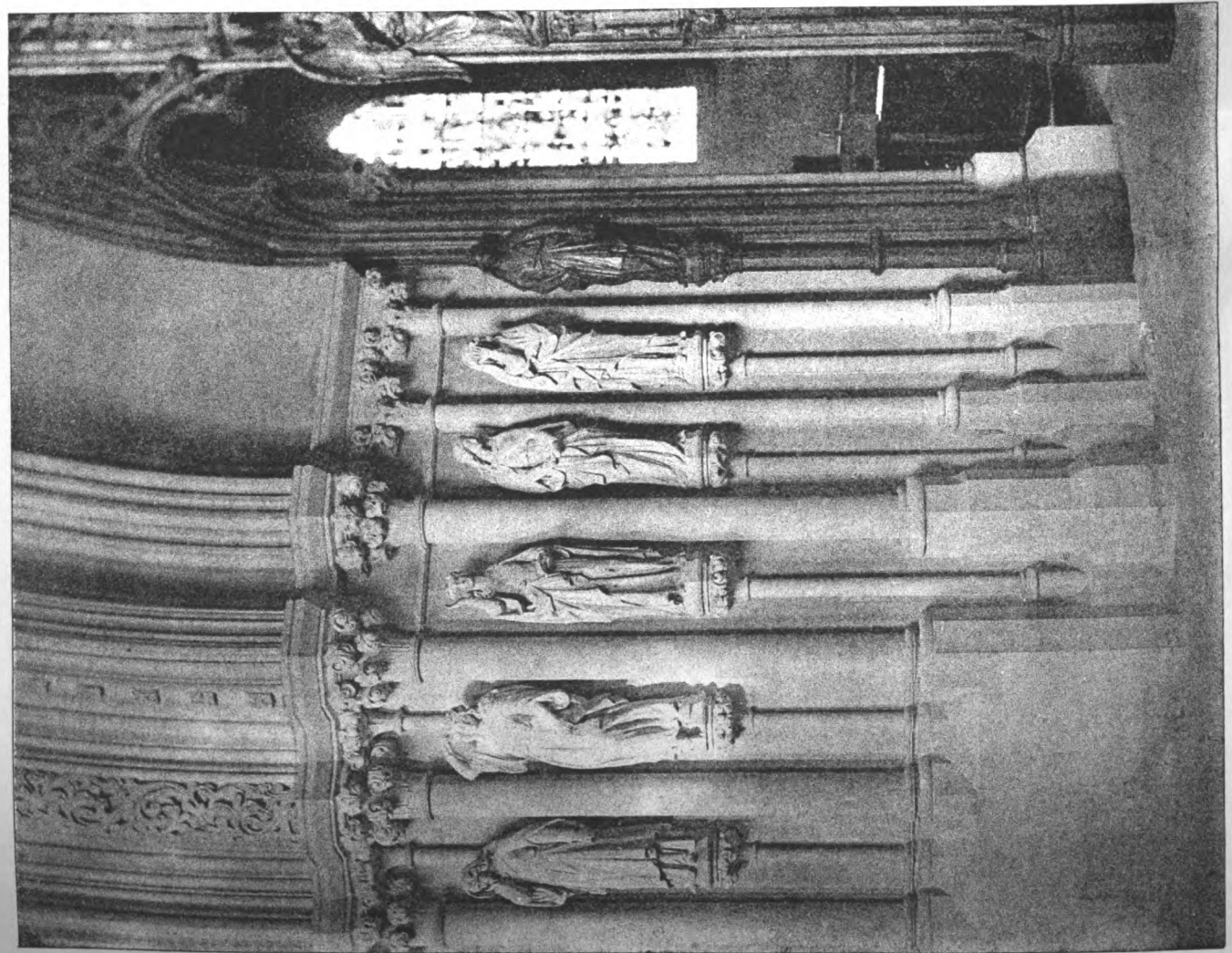


"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

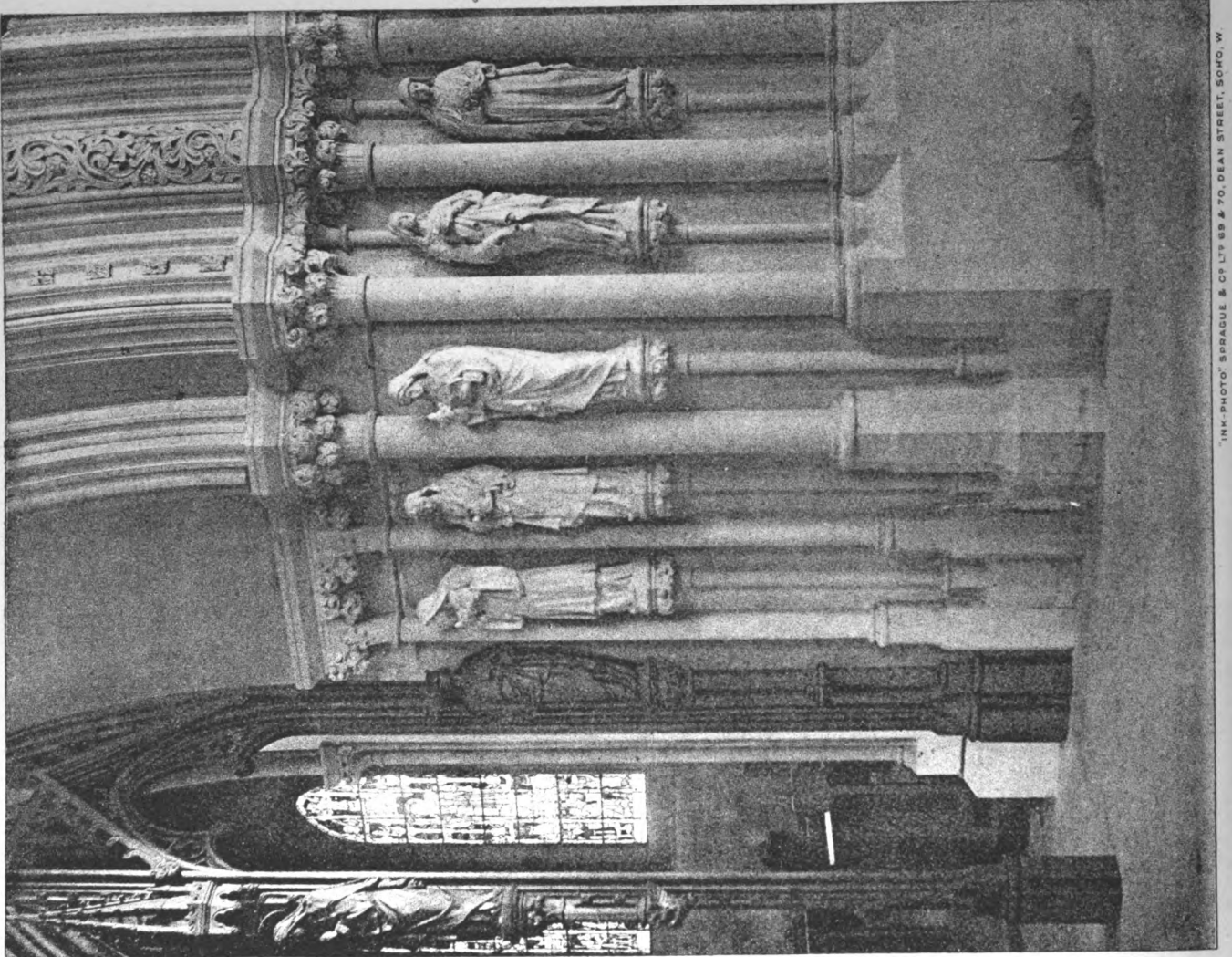
1000
1000

1000
1000

1000
1000

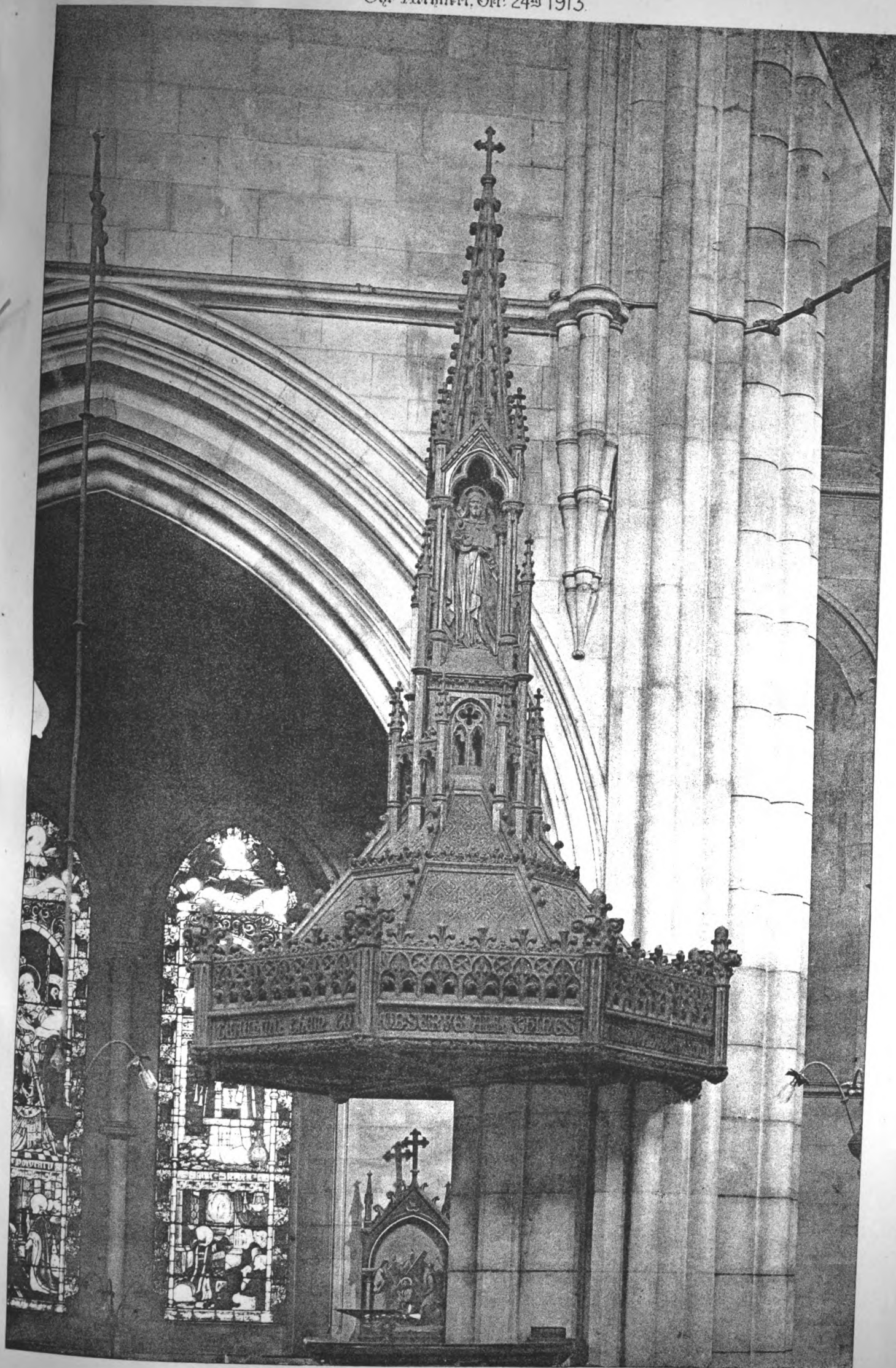


CHURCH OF S. JOHN BAPTIST, KENSINGTON: ARCH BETWEEN BAPTISTRY AND NAVE.
Mr. J. STANDEN ADKINS, Architect.



INK PHOTO: BRAGUE & CO. LTD. 65 & 70, DEAN STREET, SOHO, W.

CHURCH OF S. JOHN BAPTIST, KENSINGTON ARCH. BY MR. J. STANDEN ADKINS, 69 & 70, DEAN STREET, SOHO, W.

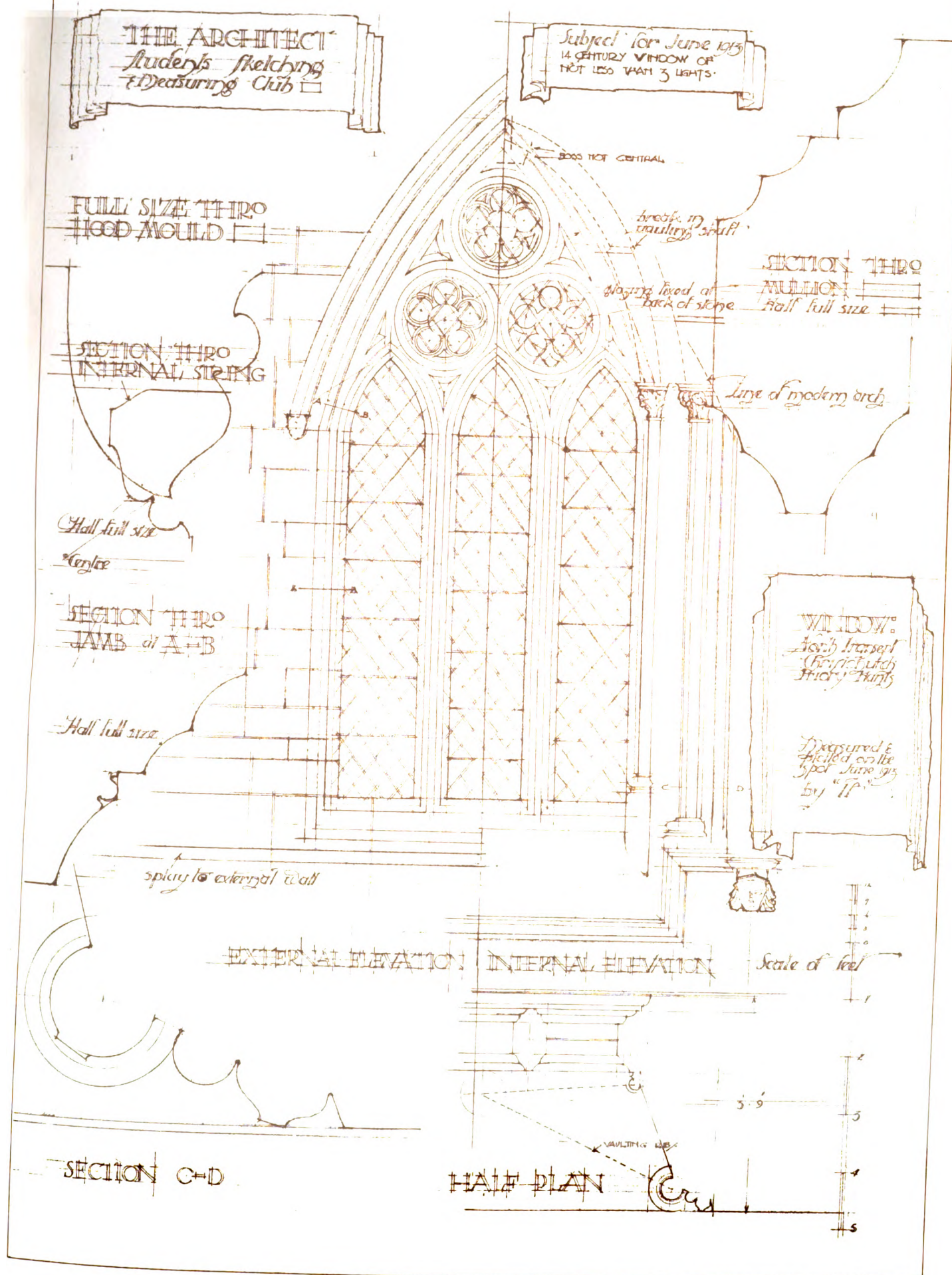


INK-PHOTO: SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

CHURCH OF S. JOHN BAPTIST, KENSINGTON: PULPIT CANOPY.

Mr. J. STANDEN ADKINS, Architect.

Digitized by Google



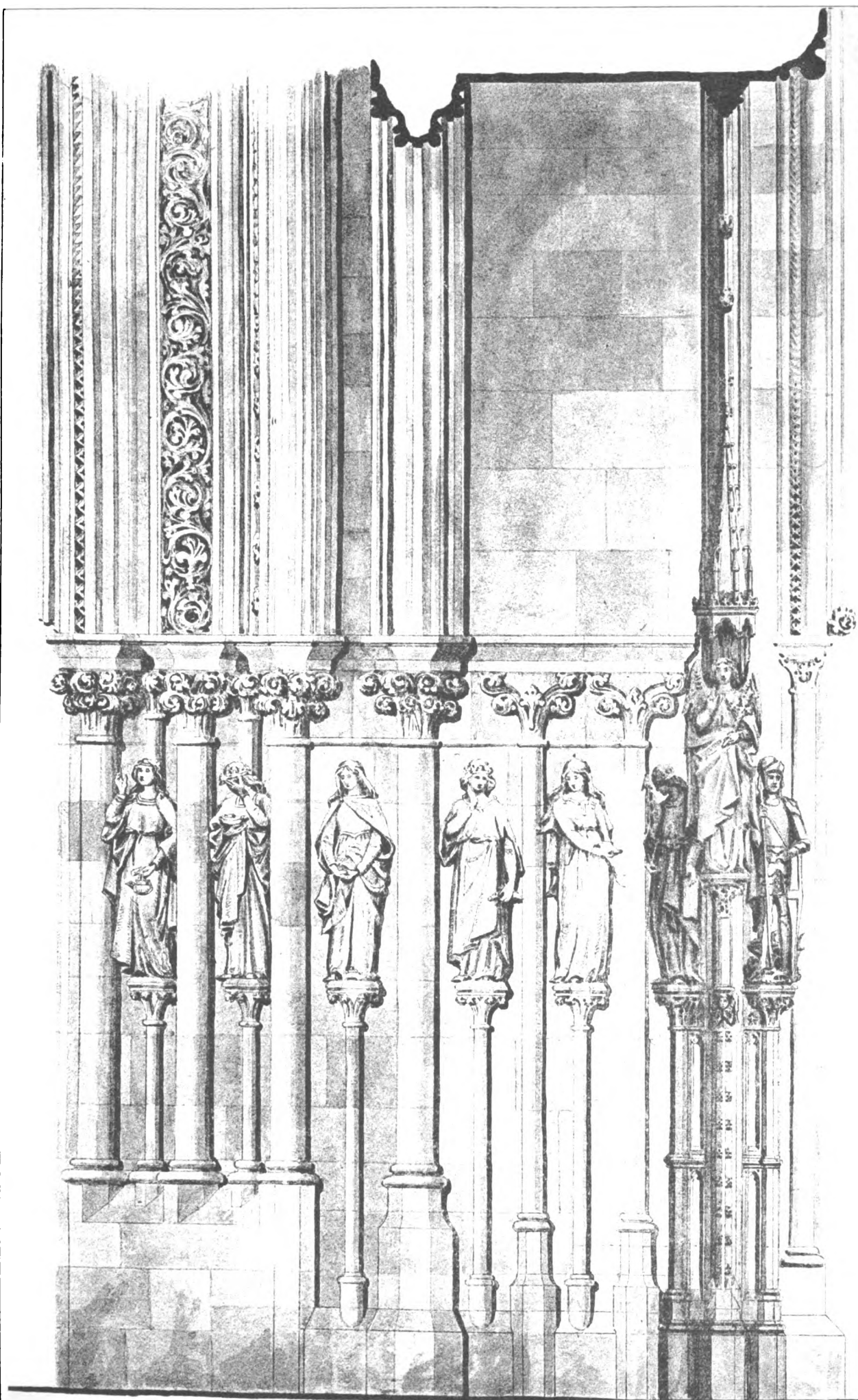
"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

Church of St John B Kensington.

BAPTIST CHURCH

STATUES IN

J. A. BROOKS

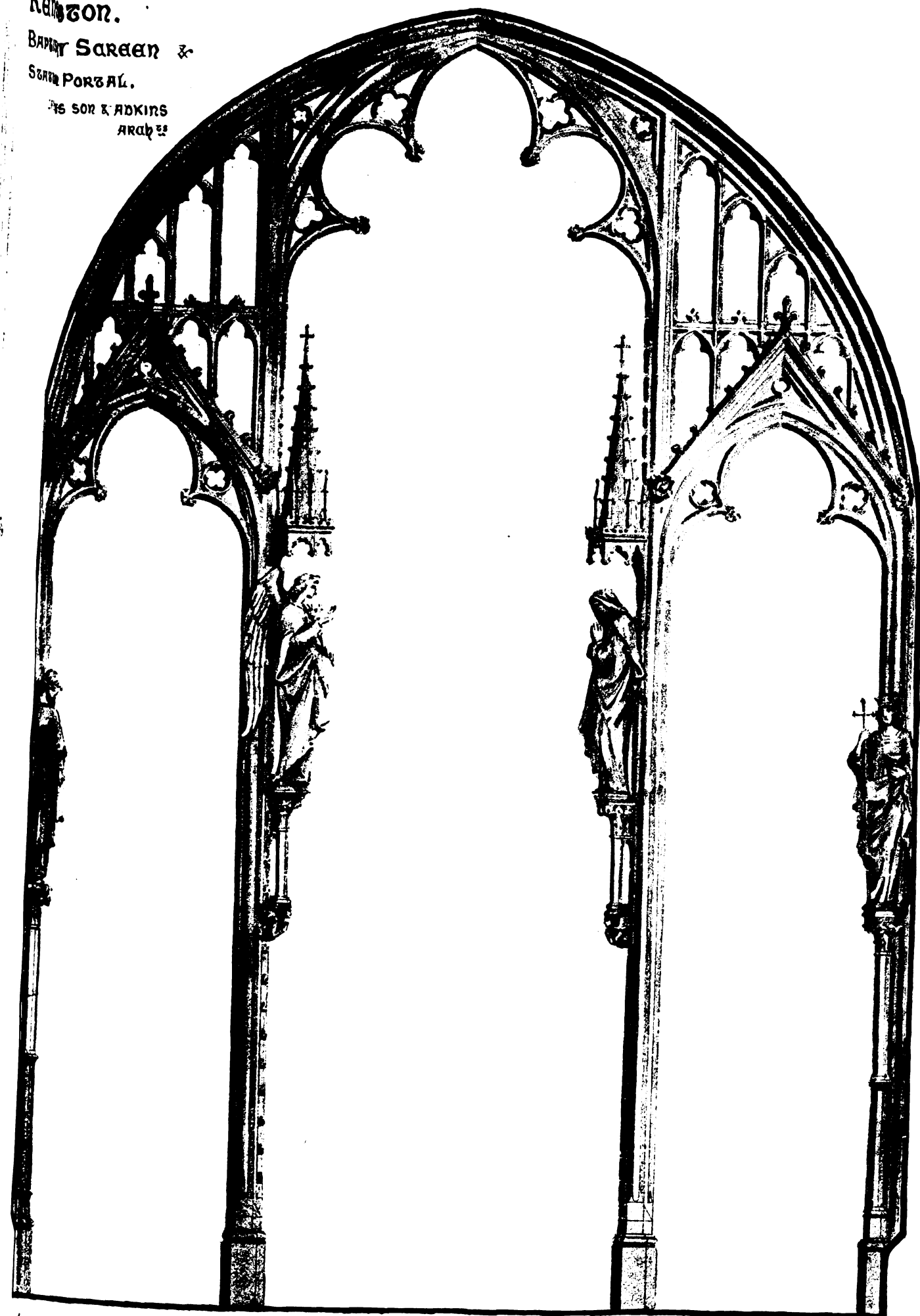


12 6 0 1 2 3

Chancel of S. John Baptist Kington.

BAPTIST SARGENT &
SCOTT PORTER.

THE SON & ADKINS
ARCHT.

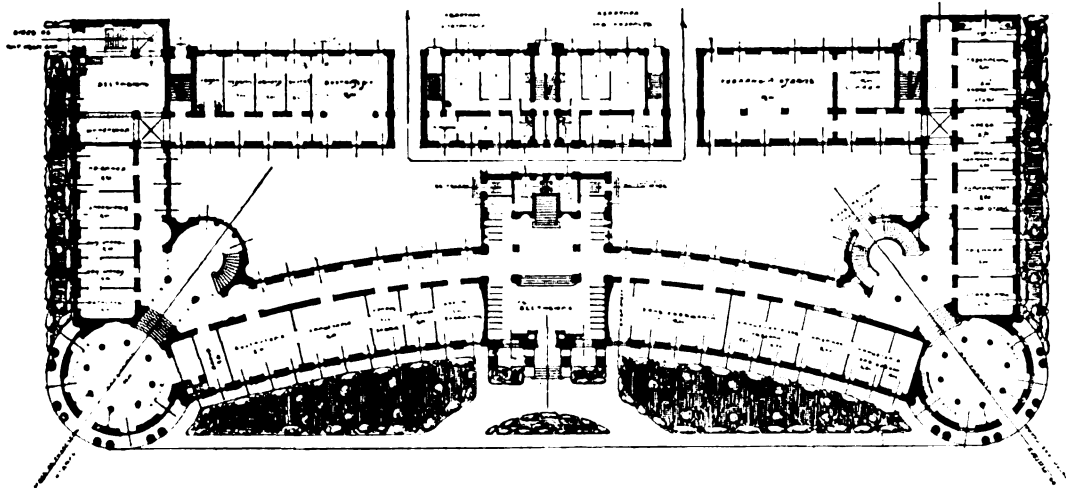


4 5 6 7 8 Feet.

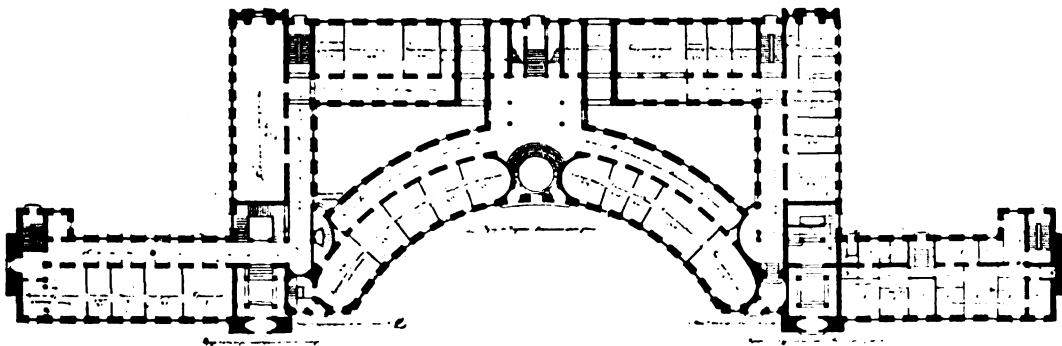
J Standen Adkins
1911.

11. T. 2
COMPE

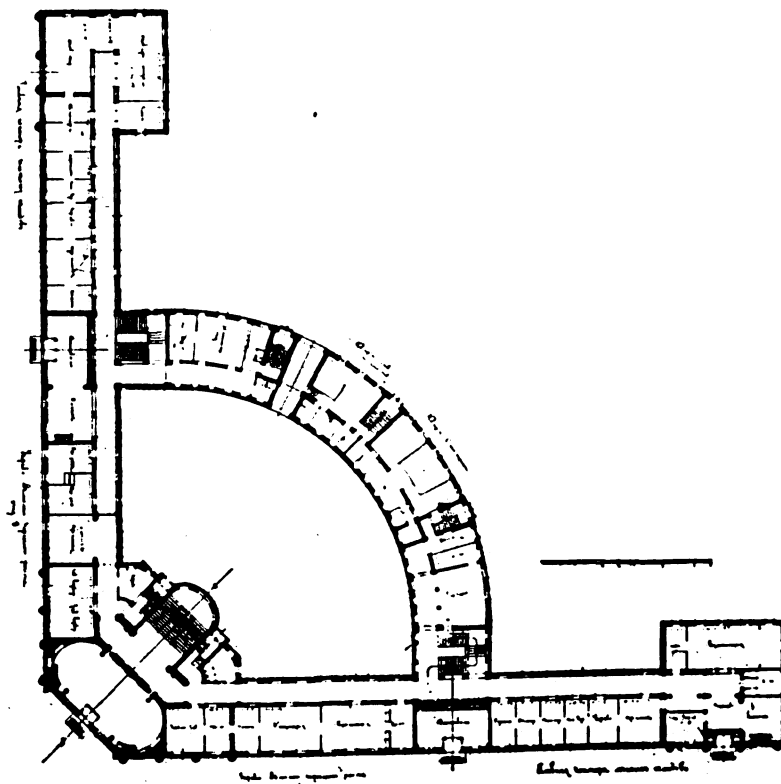
COMPETITION DESIGNS FOR OFFICES OF THE EMIGRATION BOARD, OMSK, SIBERIA.



GROUND FLOOR PLAN.—FIRST PREMIATED DESIGN.



GROUND FLOOR PLAN.—SECOND PREMIATED DESIGN.



GROUND FLOOR PLAN.—THIRD PREMIATED DESIGN.

SEVEN designs were submitted for the competition for the building of the offices for the Emigration Board at Omsk, Siberia.

The first prize, 1,500 roubles (150 guineas), was awarded to Messrs. Grinberg & Doubinsky, for a rectangular design with two enclosed courtyards and a concave façade. The

second prize of 900 roubles (90 guineas) went to Mr. Serafimov, for a rectangular plan with two enclosed courtyards, and the third prize of 600 roubles (60 guineas) was taken by the first prize winners for another design having as its principal features a symmetrical disposition of the building along two streets with the centre at the corner, and containing one large courtyard.

"PRIMOLINE"

The Ideal Covering for Ceilings & Walls.

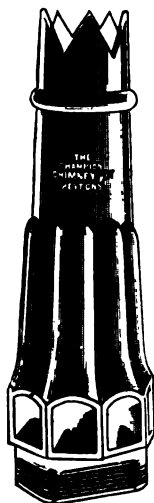
Avoid Imitations which give you trouble and cost more, and insist on "PRIMOLINE."

It is sufficient guarantee of the genuineness of "Primoline" to know that it is manufactured by Mr. W. L. GREEN, who first brought out the Gelatinous Whites and introduced them to the trade in 1905.

Write for Prices and Samples to

THE PRIMOLINE WHITE CO.
Phone 1173 Ealing. THE HAM, BRENTFORD, W.

SOLD BY ALL BUILDERS' MERCHANTS.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

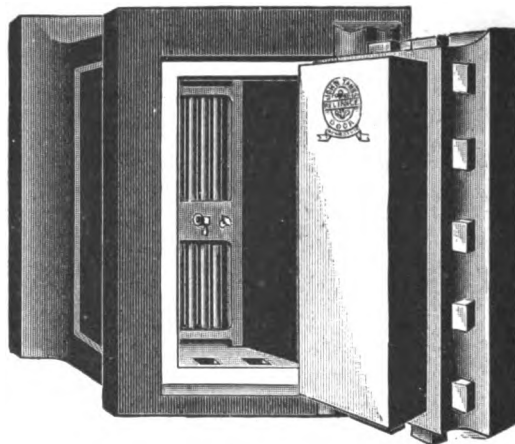
For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

ESTABLISHED 1795
FOR SECURITY AND VALUE
ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS
THE GREATEST SECURITY
FOR ANY GIVEN EXPENDITURE, BACKED UP BY
THE HIGHEST RECORD—
118 Years without a single failure against
either FIRE or BURGLARS.

Catalogues and Estimates from **JOHN TANN, Ltd.**
117 NEWGATE ST., LONDON.

PEN-YR-ORSEDD

SLATE QUARRY CO., Ltd.,

Supply Best and Seconds Red and Purple

SLATES

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

TO MERCHANTS AND THE TRADE.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "
F.O.R. Twickenham.	

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

(Continued from page 387.)

chord of the apse, and is surrounded by a very good wrought-iron screen. The vaulting of this part is painted with medallions containing heads of prophets and apostles and other saints, with legends. Perhaps no city in the world looks more beautiful than Florence does from the eminence on which San Miniato stands. The town lies in the valley below, surrounded by mountains and crowned by the dome of the cathedral, and the lofty and characteristic tower of the Palazzo Vecchio. The roads leading up to the church are laid out in boulevards and terraces, interspersed with gardens, statues, and bright coloured semi-tropical plants and flowers. Close by the church, and rather higher up the hill, is a cemetery surrounded by terraces built over vaults and full of tombs, many of which exhibit statuary of a high order.

At Orvieto, in the western part of the city, is an interesting little Romanesque church, dedicated to San Lorenzo, and restored about twelve years ago. It is built externally of a brown stone and consists of an aisled nave, with low clerestory and a semi-circular apse. There is no campanile, but on an adjacent building is a very pretty bell-cote pierced with round-headed openings for three bells, and apparently of the same date as the church. In the lower and wider part of the cote are two openings divided by a slender shaft, the third being placed above in a narrower cote which terminates in a cross-crowned gable. The sides of the lower portion have a picturesque slope. The aisles and clerestory are lighted by very small round headed windows, those of the former being deeply splayed both inside and out. There is no window at the west end of either aisle. Over the western doorway, which is a very poor Cinque Cento affair with a faded fresco in its tympanum, is a plain circle.

Within, the church is very solemn and free from Rococo disfigurements. Six very plain round arches on cylindrical columns separate the nave and choir, which are contained beneath the same line of roof, from their aisles. The columns have cushion capitals, square abaci, and plinths of the same form. It is to be regretted that the surfaces of these columns have been spaced out into oblong squares with paint to represent blocks of stone—an exceedingly unpleasant trick with Continental restorers. On several pillars there are remains of ancient paintings, a particularly fine one of St. Laurence decorating the first as you enter the church on the north. The Patron of this charming little edifice is represented here in a crimson dalmatic holding a palm branch in one hand and a book in the other. Adjoining this painting is another of a female holding a book inscribed San Brigida, evidencing that the fame of this lady, so deeply venerated in Sweden in pre-Reformation times, had penetrated to Orvieto.*

On another pillar, the second on the south side, is a perfect figure of St. Nicholas, vested in mitre and crimson cope and holding a book.

The northern clerestory wall has a band of painted subjects from the life of St. Laurence, one of the most illustrious of the early martyrs, and who is commemorated by the whole Church on August 10, his festival, in the Roman calendar being honoured with an octave. One of the subjects from his life in this church at Orvieto represents Laurence distributing the treasures of the Church amongst

* The death of her husband in 1344, leaving St. Bridget to pursue her inclinations as to the manner of life which she desired to lead, she renounced the rank of princess, which she held in the world, to take upon her more perfectly the state of a penitent. About the time of her husband's death Bridget had founded the great monastery of Wadstena, in the diocese of Linköping, in Sweden, in which she placed sixty nuns, and in a separate enclosure friars, to the number of thirteen priests, in honour of the twelve Apostles and St. Paul; four deacons, representing the four doctors of the Church, and eight lay-brothers. The convents of the men and women were separated by an inviolable enclosure, but were contiguous, so as to have the same church, in which the nuns kept choir in a doxal (an old Low German or Flemish term for a loft), the men underneath in the church; but they could never see each other. When St. Bridget had spent two years in her monastery at Wadstena she undertook a pilgrimage to Rome, where remarkable monuments of her devotion are shown in several churches. On her journey to Rome she visited the most renowned churches in Italy, among which, we may be sure, the Duomo of Orvieto, so celebrated for the Bolsena Miracle, was one. She also undertook a pilgrimage to Palestine, but on her return journey died in Rome, July 23, 1373, being seventy-one years old. Her body was buried in the church of San Lorenzo in Panis-Perna, then belonging to a convent of Poor Clares, but a year after her death it was translated to her monastery at Wadstena.

the poor, lest this their patrimony should fall into the hands of their Pagan persecutors, in accordance with the wishes of the Bishop of Rome, St. Xystus, who, during a fierce persecution which had broken out against the Christians in 258, was led out to receive the crown of martyrdom.

The Prefect of Rome, hearing of the considerable riches thus distributed, was possessed with the idea that the Christians had accumulated hidden treasures, and desired to secure them. Laurence was summoned to his presence, and mildly invited to deliver up these supposed riches. He replied, "The Church is indeed rich, nor hath the Emperor any treasure equal to what it possesseth. I will show them to you, but allow me time to set all in order and make an inventory." Three days were allowed him, during which interval Laurence sought out the poor who had been supported by the Church, and on the third day gathered them all together before the basilica—the lame, the blind, the maimed, the lepers, widows, orphans, and virgins—a vast company; and then brought the Prefect to the place, pointing out to him the treasures of the Church. "The gold you desire," said he, "is a vile metal, and incites men to crime and sin; but these are the children of light, which is the true wealth, and cannot be destroyed. The Church hath no other riches." This incident and his subsequent martyrdom are recalled in two more compartments, while a fourth appears to represent the deacon rescuing souls from Purgatory.

The tones in this series of pictures, which bears the date MCCCXXV, are very sombre, a slate-coloured grey, red and brown predominating. On the southern wall of the aisle, towards the east, is a very perfect painting of a bishop in a crimson cope, and holding the baculus or Y-shaped pastoral staff.

The arches opening from the east end of the nave aisles to a chapel on either side of the apse are Pointed, and spring from semi-octagonal responds. These chapels, which are square-ended, and have quadripartite vaults are no doubt later additions. The altar stands under a grey stone baldachin, whose four plain round arches rise from circular shafts with boldly foliated capitals, and is crowned with a plain four-sided spire. The wall surface above the arches is enriched with an arabesque pattern; and four steps conduct to the altar, which takes the form of a stone slab laid on the top of a short thick pillar, diminishing in bulk as it rises—a very primitive arrangement, but deeply interesting.

In the conch of the apse is a very large painting of Our Lord seated in Majesty. He is enthroned in a chair of curule form on three steps and holds an open book bearing the words "Ego sum Via, Veritas, et Vita." Above this are two angels tossing thuribles, and on either side stand two saints, St. Laurence and the Virgin Mary being to the left of the spectator, St. John the Evangelist and St. Francis to the right. Our Lord is vested in a crimson upper robe or cope and an alb of deep blue; St. Francis is in pale brown; St. John has a crimson upper and an olive-green under robe; the Blessed Virgin is arrayed in rich plum-colour and dark green; and St. Laurence wears the crimson dalmatic of a deacon. Above the dado (which is painted an olive-green) the ground is a dusky blue, approaching in parts to black. This group of figures looks most impressive from the west end of the nave, which has a very simple open roof of wood, gabled, and with tie-beams supported upon corbels. Between the arcades and the clerestory there is a considerable wall space, which has afforded an opportunity for the talents of the fresco-painter, as exemplified in those pictures of which I have given a brief outline. The aisle roofs are lean-to, and, like those of the nave, are temperately painted between the rafters. It is very likely that the whole interior was at one time as profusely painted as the two chapels which form a continuation of the transepts at the glorious Duomo.

The Romanesque churches of San Sisto, San Giovanni Zoccoli, and Santa Maria Nuova constitute, together with the superb nave arcade of the otherwise sadly modernised cathedral, and the Pointed Gothic remains of the adjacent Papal Palace, the chief architectural attractions of Viterbo. San Sisto stands near the Porta Romana, and its Longobardic apse actually forms part of the walls enclosing the city on this side. The exterior, with the exception of the apse and a small portion of the western façade has been so much modernised, and is, moreover, so hemmed in with secular buildings as to afford but little scope for description. San Sisto at Viterbo is not such an early church as is generally thought; the earliest in the city is San Giovanni in Zoccoli, founded in 1037, as is proved by a document in its archives, which shows that a bell recast in 1697 bore that date, and confirmed by its capitals, some of which are

**WITCHELL & CO.,**

Specialists in
Wrought Iron and Art Metal Work,
58b LUDGATE HILL, LONDON, E.C.
(and Endwell Works, Brockley, S.E.)

British Traders' Association.

For the Protection of the Building and Hardware Trades.

Managers: **CORFIELD & CRIPWELL,**
119 Finsbury Pavement, LONDON, E.C.1;
12 Cherry Street, BIRMINGHAM.

A subscription of 21 ls. per annum entitles the Member to 10 Status Reports, to the Collection of 10 Accounts in England and Wales, free of Commission, and to any registered information on the books. Continuous Reports a Speciality. Weekly Gazette issued. Membership limited to Wholesale Firms.

**STATUS INQUIRIES, DEBT RECOVERY,
INVESTIGATIONS AND INSOLVENCY DEPARTMENTS.**

CHRISTIE PATENT STONE
CO., LTD.

DRESSINGS, STAIRS, LANDINGS.

Works: Christie Rd., Stretford, Manchester.
Bournemouth Street, Hull.

**RED CROSS
Colourless Stone Solution**

Cures DAMP and ARRESTS DECAY.

Price 6/- per gallon; same as used at the new building at the Royal Infirmary, Glasgow, &c.

Made by the

STANDARD CHEMICAL CO., 69-71 Duke St., GLASGOW.

Priest & Mullings, Ltd.

IRONWORK CONTRACTORS & CONSTRUCTIONAL ENGINEERS.

Manufacturers of Iron Fencing, Gates, Iron Doors, Staircases, Roof Work, Stanchions, Principals, &c.

BUILDERS' IRONWORK A SPECIALITY.

Prices right. Prompt deliveries.

AVONVALE IRONWORKS, Netham, BRISTOL.

London Office: Bank Chambers, Finsbury Park, N.

MARSHALL & CO.

Architectural Modellers,

Fibrous Plaster & Carton Pierre Manufacturers,

SULGRAVE ROAD, HAMMERSMITH, LONDON, W.
Telephone No. 136 Hammersmith.

*Please make a note
in your books!!*

The Telegraphic Address of
"The Architect" is

"ARCHITONIA, LONDON,"

and Telephone Number

HOLBORN 4725.

GILBERT WOOD & CO., Ltd.,
6-11 Imperial Buildings,
Ludgate Circus, London, E.C.

The original Introducers of the Hot Water Cylindrical Tanks.



The original Introducers of the Hot Water Cylindrical Tanks.

Illustrated Sheet, showing application of our Hot Water Cylindrical Tanks, sent on request.

DURES CO

THE KING OF WATER PAINTS.

The FIRST in the Field. The FOREMOST ever since

THE SILICATE PAINT CO.

Made and sold a Water Paint in 1875.

30 Years Experience has stamped

DURES CO

as being the premier Water Paint.

SOLE MANUFACTURERS—

THE SILICATE PAINT CO.,

J. B. ORR & CO., Ltd.,
CHARLTON, LONDON, S.E.

clearly contemporary with those in the gallery of San Flaviano at Montefiascone. San Sisto must have been built in the first half of the twelfth century, perhaps during the pontificate of Eugenius III., who made Viterbo his residence for a considerable period.

A solemn and most picturesque interior is that of San Sisto, with the two long flights of steps between the nave and the choir, and in every way a most wonderful and fascinating one, so much so that although it was ten o'clock when I entered it, notes on its countless interesting features were not concluded when the tolling of the midday "Angelus" gave the signal for my withdrawal from such a combination of attractions.*

On either side the nave are six round arches carried upon columns, mostly cylindrical, with vigorously sculptured and very elongated capitals of varied form. The circular columns taper as they approach the capital and the base, consequently they have a "bulge" in the middle, which will be noticed by the visitor directly he sets foot within the nave. The sixth or easternmost bay on either side is lower and narrower than the rest, the column separating it from the fifth bay being composed of four shafts, between each of which is a narrow diamond-shaped one. On the north side the shafts in this pier, made to represent two tree trunks leaning against each other, produce a very singular effect. Between the arcades and the clerestory is a strip of wall intended no doubt for pictorial enrichment, and relieved only, between the dripstones of the arcades, by some carved ornament of an armorial character enclosed in square panels. The round-headed clerestory windows rise directly from a string course, as do the ribs of the quadripartite groined roof, which is no doubt a fifteenth or sixteenth century forgery.

(To be continued.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students who are qualifying for the Final Examination have been approved:—

Subject X.—(a) Design for a Classical Villa.—Mr. J. W. Bull, Mr. G. W. Callender, Mr. A. D. Clare, Mr. C. Dickeson, Mr. S. Fernyhough, Mr. E. Fincham, Mr. J. C. Fowell, Mr. G. E. Francis, Mr. R. Lone, Mr. A. E. Maxwell, Mr. C. G. Ripley, Miss M. Shewen, Mr. F. Williamson, and Mr. W. C. Young.

(b) A Pier at a First-class Watering Place.—Mr. F. A. Barley and Mr. A. J. Wood.

GLASGOW INSTITUTE OF ARCHITECTS.

THE quarterly general meeting of the Glasgow Institute of Architects was held on the 15th inst., in the Secretary's chambers, 115 St. Vincent Street, Mr. A. N. Paterson, A.R.S.A., president, in the chair. The secretary reported the proceedings of the council with regard to the matters dealt with since the previous general meeting. The following were the principal items: (1) In regard to ancient monuments in Scotland, the First Commissioner of Works and the Secretary for Scotland had been memorialised, and the representations of the Institute had been given effect to; (2) correspondence with the Town Clerk in regard to proposed new bridges, alterations at the Tron Steeple and new tramway shelters, and with the Merchants' House in support of their action in connection with the proposed demolition of the Briggate Steeple; (3) agreement as to certain matters regulating building contracts entered into between the Institute and the Glasgow and West of Scotland Building Trades Employers' Council; (4) the laying out of Cathedral Square; and (5) with regard to the lectures, intimation was made that definite arrangements regarding the first two had now been concluded, Mr. Lisle March Phillips, of London, and Sir John Stirling-Maxwell, Bart., having undertaken to address the Institute on Wednesday, December 10, and Friday, January 30, these to be open to the public as formerly. The action of the council as to these matters was approved. On the recommendation of the council the following were unanimously elected Fellows of the Institute, viz. Messrs. George F. Boswell, 19 Waterloo Street, and Andrew F. Bryden, 147 Bath Street.

* As a rule the Italian churches are inexorably closed at noon, and are not re-opened until four o'clock or so. In most places, however, the Duomo is open all day long.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Abingdon.—Proposed fire station.

BUCKINGHAMSHIRE.

Aylesbury.—House, Ascott Road, for Mr. R. J. Jewell.

Two houses, off Highbridge Road, for Mr. H. Bailey.

Two houses, off Highbridge Road, for Mr. Southam.

Pair of villas, Abbott's Road, Messrs. Mayne & Son, builders, Station Street.

"Horse and Jockey" p.h., Buckingham Road: additions.

Charndon.—Council mixed and infants' school for ninety places (£1,100).

Wooburn.—Council school (£5,400).

CORNWALL.

Truro.—Royal Institution of Cornwall: museum.

DEVON.

Holsworthy.—Five Council cottages (£1,000).

DURHAM.

Shotley Bridge.—Two pairs of semi-detached cottages for children for Gateshead Union. Messrs. Newcombe & Newcombe, R.I.B.A., architects, 89 Pilgrim Street, Newcastle-on-Tyne.

GLOUCESTERSHIRE.

Gloucester.—Premises, Quay Street: additions and alterations for proposed mortuary, for the Corporation. City surveyor.

Kempsey.—Parish Church: restoration.

KENT.

Margate.—Central fire station.

LANCASHIRE.

Bolton.—St. Chad's Mission Room and School, Belvoir and Longworth Streets (£1,400). Mr. F. R. Freeman, architect, 21 Wood Street. Messrs. C. Page & Sons, contractors, Reformation Street.

Preston.—School, Ribbleson Avenue (£4,000). Mr. F. Howarth, architect, 31 High Street, Towyn, Merionethshire.

Shaw.—Mill for 100,000 spindles, for the Lily Mill Company.

LEICESTERSHIRE.

Leicester.—St. James's Church: completion (£8,000).

LINCOLNSHIRE.

Deeping St. Nicholas.—Twelve Council houses (£2,000).

Frodingham.—Public baths.

Holbeach (Supplementary to October 10).—Nine pairs of cottages, Fishpond Lane, for U.D.C. Mr. F. B. Ward, architect, 8 South Brink, Wisbech.

MONMOUTHSHIRE.

Blackwood.—School for 300 places. Rhiwsyrda fydd. Mr. J. Bain, F.R.I.B.A., architect, County Education Committee's Offices, Newport.

NORTHUMBERLAND.

Newcastle-upon-Tyne.—Two-roomed cottage groups, Gosforth, for the Northumberland Aged Mineworkers' Homes Association.

NOTTINGHAMSHIRE.

Mansfield Woodhouse.—Police station.

Sutton-in-Ashfield.—Post office.

SOMERSET.

Camerton.—Church Room. Mr. J. A. Beynon, architect, Nunney Road, Frome.

Taunton.—Euston Lodge, Middleway: additions for Miss Badcock.

Two houses, Winchester Street North, for Mr. Lawrence.

"Princess Royal" p.h., Canon Street: additions and alterations, for Messrs. Hanbury & Cotching. Offices and pattern shop, Herbert Street: additions for Messrs. Newtons, Ltd.

Wells (near).—County Tuberculosis Sanatorium, Dulcote, for about 100 beds.

STAFFORDSHIRE.

Cheadle.—Cottage homes for the Board of Guardians.

Mr. T. Bibbey, architect, Church Stile House.

Walsall.—Post office.

The Altheat Stove

FOR THE ECONOMICAL HEATING OF
HOSPITALS, WORKSHOPS, PUBLIC HALLS, ETC.

The Cheapest to Instal.
The Cheapest to Maintain.

**NO FLUE
REQUIRED.**

—
Cost of
Consumption
**ONE
FARTHING**
per hour.



**NO SMELL
or vitiation
of the
atmosphere.**

—
Can be fixed in
any position.

The Altheat Stove can be used to
VENTILATE
as well as **HEAT** a room.

Extract from Report of the Institute of Hygiene:—"We believe, indeed, that with the advent of the Altheat Stove gas heating will become more and more general, as it appears to us that its chief drawbacks have been effectively and permanently removed."

Full particulars from

THE ALTHEAT CO. LTD., 62 Oxford St.,
London, W.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sup.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarnold, Sewest, London." Telephone: Regent 2943.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*



ELECTRIC LIGHT FITTINGS

Of Every Description.

**FRENCH & ENGLISH
PERIOD FITTINGS.**

**Very Large Selection of English
Fittings; also for Indirect and
Semi-Indirect Lighting.**

DESIGNS TO ARCHITECTS' DRAWINGS AND
SPECIFICATIONS FORM A SPECIAL FEATURE.

Just published, New Catalogue, 296 pages, post free upon application.

FALK STADELMANN & CO., LTD.,
83-87 FARRINGDON ROAD, LONDON.

**And at GLASGOW
& MANCHESTER.**

ENGLAND—continued.

SUFFOLK.

Framlingham (near).—Brandston Hall Council School: additions for East Suffolk Education Committee.

Ipswich.—Borough Isolation Hospital: new wing to the nurses' quarters. Mr. H. M. Cautley, architect, Thoroughfare.

Lowestoft.—Public Elementary School, Hervey Street.

SUSSEX.

Cuckfield.—Workmen's dwellings. Mr. A. Croucher, Council surveyor.

Hove.—St. Thomas's Church: enlargement (£1,500).

Lancing.—Parish Hall, South Street (£1,250).

Lyminster.—Council School: additions.

West Grinstead.—Jolesfield C.E. School: addition.

Worthing.—Eight houses, King Edward Avenue: additions. Messrs. F. Sandell & Sons, builders, Railway Approach.

Two houses, Grafton Road, for Mr. E. Child.

Two houses, Navarino Road. Mr. J. E. Land, architect, Christ Church Road.

House, Sugden Road. Mr. H. M. Potter, architect, 41A Warwick Street; also

Five houses in new road between Wigmore and Sompting Roads.

WARWICKSHIRE.

Bedworth.—Sunday Schools.

YORKSHIRE.

Dewsbury.—Restaurant (£4,000), for the Dewsbury Pioneers' Co-operative Society. Messrs. Holtom & Fox, architects, Corporation Street.

Doncaster.—"White Lion," St. George's Gate: rebuilding. Mr. H. B. Beck, architect, 27 High Street.

Goole.—Municipal offices, Market Hall site (£8,000).

Public slaughter houses, Mount Pleasant.

Halifax.—Vicarage. Messrs. Jackson & Fox, architects, 7 Rawson Street.

Leeds.—University: School of Agriculture.

Skipwith.—Skipwith Hall: alterations for Right Hon. Lord Wenlock.

Wakefield.—Sandal Endowed School, Barnsley Road: enlargement for an additional 200 places.

WALES.

Denbigh.—County Hall, municipal buildings, and offices.

Gorseinon.—Additions and alterations to premises, High Street, for Mr. H. Edwards.

Llanddulas.—Twelve workmen's cottages. Sanitary surveyor.

Morriston.—Two houses for Messrs. D. Williams and J. Stevens.

House for Mr. Thomas Davies.

Slaughter-house for Mr. William Harris.

Pontardulais.—House: additions for Mr. M. C. Dahne.

Tonypandy.—Cinema Theatre for the Rhondda Valley Breweries Company, Ltd. (£2,600). Mr. R. S. Griffiths, architect, Gilfach Road. Mr. J. Edwards, builder, Treslaw, Rhondda.

Treboeth.—House for Mr. J. Harris.

SCOTLAND.

Dunfermline.—Four cottages, Harrisbrae, for Sir W. Robertson. Mr. Ashton, architect.

Edinburgh.—Central Fire Station, Lauriston Place: additions.

Glasgow.—Merrylea Church, Newlands.

Three self-contained houses, Helensburgh Drive, for Mr. Adam Gibson.

Office buildings, Whiteinch, for North British Diesel Engine Works, Ltd.

No. 181 Baltic Street: additions, for Sir W. Arrol & Co., Ltd.

Bain Square Washhouse, Gibson Street: extension, for the Corporation.

Greenock.—Semi-detached villa, Denholm Street, for Mr. B. C. Maitland.

Noranside.—Forfar County Sanatorium. Messrs. MacLaren, Sons & Soutar, architects, 10 Reform Street, Dundee.

Paisley.—Abbey: restoration.

Perth (near).—Bailhousie Castle: new wing for Right Hon. the Earl of Kinnoull.

Port Gordon.—Freemasons' Hall: enlargement. Mr. J. Wittet, architect, 81 High Street, Elgin.

Rothsay.—County Sanatorium (£2,500). Mr. A. McKinlay, architect, 6 Castle Street.

Townhill.—Business premises and houses, for the Industrial Society, Ltd.

Houses, Forester's Road, for Messrs. H. Ness & Co., Ltd.

IRELAND.

Banbridge.—Twenty-six labourers' cottages, for the R.D.C.

Belfast.—Proposed public baths, Dock Ward district. Mr. J. St. J. Phillips, A.R.I.B.A., architect, 16 Donegall Square South.

Day industrial school for about 500 places, Ballymacarrett district.

Schools, Hemsworth Street. Messrs. Young & McKenzie, architects, 7 Donegall Square West.

Dublin.—Convent, Clarendon Street: additions for the Sisters of the Holy Faith. Mr. P. J. Munden, architect, 31 Exchequer Street.

House off Strand and Howth Roads, Clontarf. Mr. R. J. Stirling, architect, 45 Pembroke Road.

Galway.—Technical Schools for the Urban Council (£23,800).

Kilrush.—Town Hall. Council surveyor.

Kingstown.—Thirty artisans' dwellings, Callaghan's Lane.

Merrion.—Public pier and baths (£13,500), for the Pembroke U.D.C.

Pembroke.—Refuse destructor (£5,000) and working-class lodging-houses (£1,200), for the U.D.C.

Taugharane.—Factory: additions and alterations, for the Ivy Weaving Company, Ltd. Mr. R. Lynn, architect, 18 Ann Street, Belfast (and 22 High Street, Lurgan). Messrs. McDowell & Fitzsimons, contractors, Corcreaney (Co. Down).

PATENT SPECIFICATIONS PUBLISHED
OCTOBER 16, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

No. 19,191. Sept. 30, 1912.—W. E. Maltby, 153 Wolaton Street, Nottingham. Detachable supporting brackets and bearings for iron gates.

21,465. Sept. 20, 1912.—Karl Alt, 8 Fasenen Gasse, Strassburg, Elsass, Germany. Domestic stoves.

21,795. Sept. 25, 1912.—J. S. & J. M. Hogg, 342 Prestwood Road, Wednesfield, Staffs. Draught excluder for doors.

22,024. Sept. 27, 1912.—A. E. Drown, A.M.I.C.E., 20 Victoria Street, W. Roofs for buildings.

22,043. Sept. 27, 1912.—Ladislaus Remenyik, Arad, Hungary. Iron railings.

23,704. Oct. 17, 1912.—A. T. Winkles, 68 Clarendon Park Road, Leicester. Foot-scrappers.

24,105. Oct. 22, 1912.—W. H. Tonks and Walter Sparks, of Tonks, Ltd., 201 Moseley Street, Birmingham. Attaching door knobs to spindles.

25,953. Nov. 12, 1912.—Henry Jewett, 26 Rosebery Square, Rosebery Avenue, E.C. Locks and bolts for doors.

27,608. Nov. 30, 1912.—E. S. Greenard, "Belvedere," Sidegate Lane, Ipswich. Apparatus for opening and closing windows.

27,945. Dec. 4, 1912.—Geo. Monkhouse, 49 Henry Street, Workington, Cumberland. Flexible ladders.

28,105. Dec. 5, 1912.—W. J. Thompson, "Wasdale," Windsor Road, Monkseaton, Northumberland. Appliance for automatically supplying disinfectants or deodorants to the flushing cisterns or tanks of water-closets, urinals, and the like.

28,581. Dec. 11, 1912.—Milner's Safe Co., Ltd., 28 Finsbury Pavement, E.C., and C. A. Ely, May Villa, Disraeli Road, Forest Gate, London. Mechanism for retarding the lowering of roller blinds or shutters, screens, fireproof curtains, and like appliances.

29,518. Dec. 23, 1912.—T. E. Barralet and the Parkinson Stove Co., Ltd., Stour Street, Spring Hill, Birmingham. Valves for controlling the supply of gas to water-heaters or geysers.

1,453. Jan. 18, 1913.—W. L. Bullows, Long Street Works, Walsall. Tie for binding together scaffold poles and other temporary structures.

2,095. Jan. 25, 1913.—E. W. Rider, Rancocas, New Jersey, U.S.A. Brick machines.

3,417. Feb. 10, 1913.—Dated under International Convention, Feb. 9, 1912. J. N. Pickett, Odell, Gage County, Nebraska, U.S.A. Rain-water filters.

Any of the above specifications may be obtained from J. D. Roots & Co.

Callender's Dampcourses

have gained
First Place in Specifications
by reason of
Standard Quality,
and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

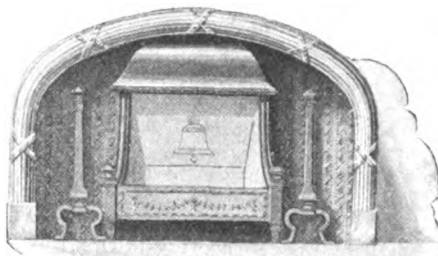
GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

GOLD
MEDAL

"BELL" DOG
GRATES



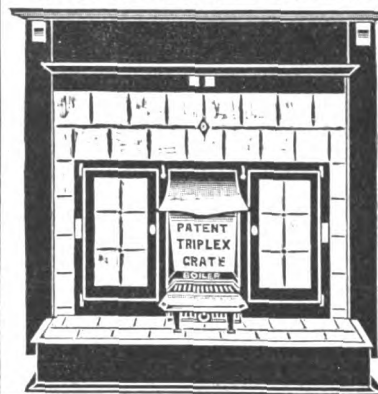
are in use in all parts of the world, and are giving absolute satisfaction everywhere; are sold under a guarantee that if they do not give perfect satisfaction to the user we will take them back, and refund the full amount paid.

Send for Lists and Testimonials.

They will cure
Smoky
Chimneys.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.
And Northampton.

THE "TRIPLEX" PATENT
Combination SITTING ROOM GRATE



ONE FIRE does the work
of the household.

You can cook in the ovens with the greatest ease. The bath water is heated very quickly, giving 2 hot baths per hour. The tiled front gives a smart appearance. No black-leading required. Entire absence of dust or dirt from the fire.

Complete Specification sent on application.

HORRELL & BOWMAN
Patentees & Manufacturers,
508-510 Moseley Road,
BIRMINGHAM.

Ben Henry Johnson & Sons

MODELLERS and PLASTERERS

ARTISTIC FIBROUS PLASTER WORKERS

SPECIALISTS IN FRENCH STUC WORK

Mouldings in Wood, Compo & Enriched Plaster

A FEW RECENT IMPORTANT CONTRACTS:

NEW ADELPHI HOTEL, Liverpool

(First and Second Contracts)

NEW LIVER CHIEF OFFICES - - - Liverpool

WHITELEY'S NEW PREMISES - - - Westbourne Grove

CARLTON HOTEL (after Fire)

VICKERS HOUSE - - - Broadway, London

69 VICTORIA STREET, LONDON, S.W.

And Primrose Hill, Fontenoy St., LIVERPOOL.

Wires:

"JONSONIPLA, LONDON."
"HENJONIN, LIVERPOOL."

STUDIOS AND WORKSHOPS:
PARKHILL RD., HAMPSTEAD

'Phones:

5419 VICTORIA.
626 & 627 CENTRAL, LIVERPOOL.
(ADELPHI) ROYAL 4434.

The Architect.

CONTENTS.

	PAGE
Ideality in the Home	397
Notes and Comments	398
Stock Prizes for an Architectural Decoration	400
Competition News	400
Illustrations :—	
Ellesborough House, Roehampton Lane, S.W.	400
Upper Ship Hotel, Reading	400
Tower, Chipping Campden, Gloucs.	400
Bell Tower, Evesham	400
The Architectural Association	401
Architectural Inlay (illustrated)	405
Birmingham and Building By-Laws	408
Birmingham Architectural Association	408
English Neo-Classic Architects	409
The Society of Architects	411
House at Grunewald, Berlin (illustrations)	412-3
Mr. A. Rackham, R.W.S., at the Leicester Galleries	415
Building Progress in the Provinces	415
British Patent Specifications	417
Correspondence	419

FORTHCOMING EVENTS.

Monday, November 3.

Royal Institute of British Architects: Presidential Opening Address by Mr. Reginald Blomfield, A.R.A., at 8.30 P.M.

Tuesday, November 4.

Institution of Civil Engineers: Presidential Address by Mr. Anthony G. Lyster, and Presentation of Medals awarded by the Council, at 8 P.M.

Wednesday, November 5.

Institute of Sanitary Engineers: Paper entitled "The Education of the Sanitary Engineer," by Mr. E. H. Blaker, F.S.I., at 8 P.M.

Royal Archaeological Institute: Paper entitled "The Pestilences of the Fourteenth Century in the Diocese of York," by Mr. A. Hamilton Thompson, M.A., F.S.A., at 4.30 P.M., at the Society of Antiquaries' Apartments.

Friday, November 7.

Incorporated Institute of British Decorators: Paper entitled "Stencilling," by Mr. W. Stewart Greene, F.I.B.D.

Institution of Municipal Engineers: Fifth Annual General Meeting at 4 Southampton Row, W.C., at 11.45 A.M.

IDEALITY IN THE HOME.

We have been trying to realise, after visiting the recent Ideal Home Exhibition at Olympia, in what consists the ideality. Judging from the examples of cottages or bungalows which were erected, one might imagine that the ideal home should be as small as possible, but somehow we find it difficult to bring ourselves to this conclusion. It is true that a small house has advantages. It may render it possible for the ordinary man to have two homes, one in town near his work, one in the country for week-ends and holidays. But if, by the force of one's circumstances, one were not able to attain this ideal, it would be more enjoyable, we imagine, to have rather larger homes than any that we have seen this year at Olympia. A small house, in order to be at all liveable, necessarily connotes a considerable portion of one's time spent in the open air, whether in a garden or in some occupation or amusement that is not to be pursued within doors. Then the house becomes merely a place in which one eats and sleeps.

It would not be perhaps fair to criticise the design of the pair of £175 cottages designed by Mr. Courtenay M. Crickmer from the point of view of an ideal home, inasmuch as they were presumably intended for the accommodation of "persons of the working class," as it is the fashion to talk nowadays. Even, however, from this point of view, the *Daily Mail* notion of what is suitable for the "working class" has been beaten by the cottage evolved by Mr. Arnold Mitchell. A £175 cottage is beyond the means of the ordinary agricultural labourer if he is to pay an economic rent. On the other hand, Mr. Crickmer's cottages are not suitable for the week-end. However much we may criticise the conditions of the problem set to Mr. Crickmer, and the enormous number of other architects who entered the competition promoted by the *Daily Mail*, we are fain to recognise that, subject to those conditions, Mr. Crickmer's design was skilful. The £200 cottage evolved by Mr. Ralph Knott was, frankly, to our idea, neither quite what is wanted for persons of the working class nor for the week-end, but is a compromise between the two. The necessity for cooking in the living-room and for taking one's bath in the scullery would alone be sufficient to render the plan unsuitable for a week-end cottage; whilst the number of corners and quaint internal effects, not even excluding the multiplicity of cupboards, are out of place in a working-class dwelling.

When we get outside the cottages to the various exhibits of numerous other firms, we are struck at once

by the discrepancy between the small cost of the presumed ideal home and the expense of the things that are to go inside it. The various exhibiting firms would seem to predicate that a home cannot be ideal without costing a lot of money in its fitting and furnishing. It might be supposed by a visitor, say, from a foreign country or another planet that essential features of a modern English ideal home were auto piano-players and imitations of old-time furniture; but, at any rate, he would not be far wrong in recognising that a very essential desideratum is the introduction of every possible device for labour saving in domestic work.

Anthracite coal fires, which may be kept alight for months at a time, cooking ranges and boilers, which will do their work with the minimum of attention, and always provide hot water at a moment's notice at any time—day or night—with the least possible attention and work, would seem to be necessary to the ideal home. There is no doubt that our modern cooking ranges, whether heated by coal or by gas, have attained a remarkable degree of efficiency in the reduction both of the cost of fuel and of labour. This latter attainment is perhaps pre-eminently achieved in the application of electricity. If one can obtain current at a low price, or does not mind paying present prices, there is little doubt that electricity for cooking or heating, as well as for such applications of small motive power as are necessary in household work, is pre-eminently supreme in the saving of labour. The use of vacuum cleaners, for example, which class of apparatus made quite a big show at the Exhibition, can scarcely be made to any large extent without the assistance of electro-motive power.

We shall not be far wrong, in view of what we have both seen and heard, in formulating as one of the primary essentials of an ideal home the reduction of labour, and in this connection there is certainly something to be said in favour of the small house—small not only in the actual sizes of the rooms, but particularly in the reduction to the minimum of the number of the rooms, and, above all, of the length and area of corridors and passages. As an aid to the reduction in the sizes of rooms, as well as in their number, the folding furniture, particularly beds and washstands, which were shown in the Exhibition is a decided help, due regard being had to the necessity from the hygienic point of view of providing sufficient means of airing. Soft water in a house is also a considerable assistance towards the reduction of labour, as well as economy in soap; so water softeners, we consider, rightly found a place in the Exhibition, but

we did not notice that there was very much attention paid to the possibility of utilising rain water.

Whether the garden of the ideal home should necessarily possess, as components of its lay-out, pergolas, rustic stone-work and crazy pavements is, we think, a very doubtful question, although one might imagine from the Exhibition that no ideal garden would be complete without these adjuncts. We particularly incline to the view that the pergola, however suitable to the climate of Italy, where it is both useful as well as ornamental, is not altogether quite needed for an English garden, unless in large areas where it can be relegated to a minor position and leave free a considerable portion of the garden for other treatment. In an English garden one does not always wish to walk in the shade of a pergola or in a pleached alley.

There was little indication in the Exhibition that pictures should form part of an ideal home, but this, perhaps, it is hardly necessary to enforce upon the modern Englishman. Indeed, he is rather too prone to overload his walls with "pictures" of all sorts—oil-paintings, water-colours, drawings, engravings, lithographs, and photographs, and there is a great deal to be said in favour of the Japanese practice of reducing the number of pictures exhibited at any one time and making frequent changes. When the same picture hangs upon the wall year after year the householder is too apt to pass it by without really enjoying it, even if, indeed, he does not reach the "familiarity that breeds contempt."

One need hardly assume that the Russian village and the many examples of Russian industries played any part in the Exhibition towards a realisation of an ideal home. Interesting and attractive no doubt they were, but the bizarre character of their decoration rendered them rather objects for curiosity than for admiration. Far better, in our opinion, were the exhibits under the name of "Arts and Crafts," illustrating, as they did, the application of art to the minor objects of the home. Indeed, we might sum up the essentials of an ideal home as being convenience, including particularly under this heading the saving of labour, health, and beauty.

NOTES AND COMMENTS.

As *The Architect* was the first journal in this country to make use of lithography for the illustrations of its inset plates, we naturally take an interest in the doings of the Senefelder Club, which exists for the advancement of artistic lithography and whose fifth exhibition is now open at Messrs. Goupil's Gallery. Present-day architectural draughtsmen usually have their work reproduced by the aid of photography, but it is not so very many years ago that the illustrations in the Sketch Book of the Architectural Association and other similar more or less private publications were drawn by the contributors themselves on lithographic paper and transferred to the stone, a process still recognised and practised by members of the Senefelder Club. For some of the more characteristic productions of artistic lithography direct work upon the stone is, however, essential, and the technique of this branch of art affords a wide range of possibilities in expression and draughtsmanship, as is well shown at the present exhibition of the Senefelder Club. This exhibition we should strongly advise all architectural draughtsmen to visit, as even though they may not contemplate actual lithographic work the presentations of architecture by such artists as Mr. J. Kerr-Lawson and Mr. Joseph Pennell, the President of the Senefelder Club, are eminently suggestive. That lithography is not limited to black-and-white hardly needs stating, but the extent of the capabilities of the art in the use of colour, as shown in the third room at Messrs. Goupil's, is not the least interesting feature of the exhibition. Until this year the membership of the Senefelder Club has consisted of practising artist lithographers, but a body of lay members is now being added, who for an annual subscription of one guinea will receive each year a signed

proof of a lithograph, specially drawn by a member of the club. The first lithograph to be issued to the lay members of the Senefelder Club will be drawn by the President, Mr. Joseph Pennell, and will be entitled "The New Bay of Baiae." It shows the subject which has for hundreds of years inspired artists.

Over seventy lay members of the Senefelder Club have been admitted to membership, and the entire edition, limited to fifty, of the New Bay of Baiae, the Club's first plate, has been acquired by them, so that a second proof lithograph to be issued will be drawn by Mr. J. McLure Hamilton, whose portraits of eminent men are so well known.

We congratulate the Liverpool University School of Architecture on the success of one of its students, Mr. Harold Chalton Bradshaw, in obtaining the first English "Prix de Rome" in architecture. Mr. Bradshaw was born in Liverpool on January 15, 1893, and received his early education under Mr. C. W. Bailey, M.A., at the Holt Secondary School. In 1908 he became lantern and studio boy, and later private assistant to the Roscoe Professor of Architecture of the University of Liverpool, Mr. C. H. Reilly, a position he held until 1911. In the latter year he entered the School of Architecture as a student with a special grant from the University. In July of this year he obtained the Holt Travelling Scholarship of £50, and Sir William Lever's prize for a design for a new river front to Liverpool. He is now studying for the University diploma. Mr. Bradshaw obtained last January the second place for his design for a "Terminal Railway Station" in the competition for the Soane Medallion.

An interesting brochure on the church of Waltham Holy Cross, Waltham Abbey, by the Reverend Gifford H. Johnson, late curate of Waltham Abbey, has just been published which forms a useful guide to those students and amateurs of ancient architecture who may, as they should do, visit this church, one of the most important examples of Norman architecture in the neighbourhood of London.

As an example of the methods of Government valuers in making "provisional valuations" under the Finance Act, 1909-10, for the Commissioners of Inland Revenue, the proceedings on appeal relating to the valuation of part of the site for the new offices of the Port of London Authority are illuminating. In May 1912 the provisional valuation was served, placing the gross value at £20,250 as on April 30, 1909. The property had already been sold on July 15, 1910, to the agent for the Port of London Authority for £27,000, and it was given in evidence that there had been no jump in value between April 30, 1909, and July 1910.

Criticism on Mr. Arnold Mitchell's £110 cottage appears to chiefly centre on objections to the small size of the rooms provided, but when a house is to be brought down to the irreducible minimum of cost, it is obvious that the sizes of the rooms must also be the irreducible minimum. Although the areas of Mr. Mitchell's living-room and best bedroom are respectively 135 square feet and 120 square feet, as against the recommendation in the Departmental Committee's report of 165 square feet and 144 square feet, the sizes are probably quite ample in the estimation of probable occupiers, and certainly, in Suburbia, there are plenty of sitting-rooms and bedrooms in use of even smaller size than in Mr. Mitchell's agricultural labourer's cottage. In discussing the sizes of rooms to be provided for an agricultural labourer one must not forget that neither he nor his family live indoors, and also that the accommodation of a room is not to be correctly estimated entirely by its floor area, or its healthiness by its cubic capacity alone. Objections have been raised that in Mr. Mitchell's design the entrance door opens direct into the living-room. Surely

this is characteristic of cottage-planning, and its advantages, as well as its defects, are those to which cottage dwellers are accustomed. It has also been objected that the larder, with a good-sized window, looks east in the cottage built at Merrow; but this is clearly the fault of location, not of plan, which is clearly designed for south aspect to the entrance front, east and west for bedrooms, and north for larder and washhouse—all quite correct. No one can fairly measure a £110 cottage by the standard of an "ideal home," and it would no doubt be highly desirable that every agricultural labourer should be housed in at least a £150 building, but ninepence a week extra rent is a serious item to the prospective tenant. Englishmen, especially in the country, are not accustomed to spend in rent the same proportion of their income as is general on the Continent.

The present general public interest in cottage building justifies the latest scheme of the Rural Co-partnership Housing and Land Council. The plan now devised by this Council is to form a permanent cheap cottage exhibition in each county. The process will be gradual, and will be arranged in this way: Each time an improvement in structure, accommodation, or cost has been worked out in any district a duplicate of the cottage is to be built at the county centre. Plans, specifications, and working drawings of each type will be published, and sold at a moderate fee to persons desirous of building cottages in their own locality. The cottages will be built to a rural lay-out plan, and will be let to good tenants who will be willing to let the interior of their cottages be seen on agreed-on days. The various parts of a county and the various counties will thus be brought into intelligent and useful rivalry in a much-needed rural reform.

In his presidential address to the English Ceramic Society Sir Henry Cunynghame well explained the truth that art appealed to three different sides of human nature—the sensuous, the emotional, and the intellectual. He took for illustration first of all the splashed jug or vase. The potter made up some copper on the one hand and some chromium on the other; the chromium was shot in, the glaze applied, and the whole put into the furnace, the result being awaited with anxious interest. "I wonder what I shall get," said the potter. When the vase came out it was a wonderful production described as "sang de bœuf." Everyone said, "My eye! What a beautiful thing." But the late Mr. Solon would have said: "That is not art at all; it is chance. To me art must be more sensible than that; it must bring in the emotions and the intellect." Take, on the other hand, a work of art which brought in the emotions, but which left out the other two important qualities. Probably the culminating subject for an emotional work of art was a really beautiful picture of the Madonna and Child, because there one saw united together the beautiful idea of maternity in womanhood and simplicity in childhood, the feeling of the mother for the child and the child for the mother, together with a representation of the most beautiful woman and the most beautiful child. The modern French way of expressing this was to represent a rough peasant woman with a dirty urchin in her arms, and the French artist would say, "That is realism." But the emotional aspect of art to the mind of the lecturer was to raise the emotions, and for a representation of a pale, emaciated mother with a dirty brat in her arms one had only, unfortunately, to go to the streets. The emotional in art ought, as far as possible, to be represented always in its noblest aspect.

Another illustration of art in a purely intellectual aspect would probably be a historical picture—such, for instance, as Cromwell looking down at the dead body of Charles I., an incident that very possibly occurred, though many historians doubted it. At all events, the subject was a really fine one from this aspect, and a rugged chap was represented as looking down upon the

face of the man he had executed and wondering whether, after all, he might have possibly made a mistake. Here were three examples of what the lecturer meant—the splashed vase, representing the sensuous; the Madonna and Child, representing the emotional; and a historical or landscape picture, representing the intellectual. Now the point he wished to make was that all these types of art were legitimate. There was an absurdity about the criticism which claimed that the intellectual should be banished from art. What would people think about a man who held such a view in regard to literature? All literature was legitimate if it was only good, and all art was legitimate if only well carried out. He thought that the best definition one might give of art was that it was a language which certain people elected to use to convey their ideas to others. The language must be intelligible. The Frenchman would, of course, look at a picture with the eyes of a Frenchman, and it was no use trying to impress him with something which he did not know of in French history. The Englishman, on the other hand, could only be appealed to effectively by something having an English significance, and a representation of a seraglio with coloured women smoking in cabarets was not likely to appeal to him. The subject chosen must be interesting; the plot must be well told and the diction good; in other words, the language must be good language and the design good design.

The Henry Jarvis Travelling Studentship in Architecture is practically equal in value and honour to the English "Prix de Rome," and has been awarded by the Council of the Royal Institute of British Architects to Mr. Louis de Soissons, Student of the Royal Institute, on the recommendation of the Faculty of Architecture of the British School at Rome. Mr. de Soissons is the first winner of this studentship, which is open to Associates and Students of the R.I.B.A. under 30 years of age, and is of the value of £200 per annum, tenable for two years at the British School at Rome. Mr. Louis de Soissons won the Tite Prize of the Royal Institute in 1912, and we tender him our congratulations on his latest success.

We have received a sample of an ingenious form of slide-rule, which, under the name of *The "Flash" Square and Cubic Calculator*, has been put on the market by Messrs. Gall & Inglis. Like all mechanical calculators, this needs great accuracy in operation, or one gets wrong results. We found, for example, that the product of $20 \times 12 \times 20$ is 4,700. The scale of the instrument is also too small for actual everyday use beyond the simplest figures; for example, all possible cubic results between 20,000 and 30,000 have to be read or guessed in a divided length of half an inch.

A new map of London to a scale of two inches to a mile has recently been issued by Messrs. Edward Stanford, Ltd., which, being brought up to date as at July last, is of high value for office reference. Printed in colours, with roads and streets left white and named, this map is easy to read. One particularly useful feature is the exact delimitation of the County of London, as well as of the City, which solves the question not always readily answered when an architect wants to know whether his new building comes within the scope of the London Building Acts. The price of issue is 5s. 6d.

ARRANGEMENTS have been concluded whereby the custody of Jedburgh Abbey, one of the finest ecclesiastical buildings in Scotland, has been transferred to the Commissioners for Ancient Monuments acting under His Majesty's Board of Works, who will now be responsible for the preservation and upkeep of the fabric.

STOCK PRIZE FOR AN ARCHITECTURAL DECORATION.

THE Council of the Royal Society of Arts are prepared to offer, under the terms of the Stock Trust, the Society's Gold Medal, or a prize of £20, for competition amongst students of the Schools of Art of the United Kingdom, at the annual competition to be held in 1914.

The prize is offered for the best set of original designs for an architectural decoration, to be carried out in painting, stucco, carving, mosaic, or any other process.

This architectural decoration is to be for the side of a room or a hall, a ceiling, the apse or side of the chancel of a church, or any suitable part of the interior of a building.

The designs must be on imperial sheets. Each set must consist at least of a coloured drawing to scale of the whole design of decoration, and two coloured drawings of details on separate imperial sheets. Mere patterns or sketches of details, without the mouldings or borders necessary to make up a complete decorative scheme will not be taken into consideration. The designs must have been made during the twelve months immediately preceding the date of the competition.

The prize will be awarded on the report of the examiners in the National Competition of the Board of Education. Designs submitted for this prize must be sent in with the other works forwarded for the National Competition. They must be marked "In competition for the Stock Prize," and must comply with the rules governing the National Competition as issued by the Board of Education.

No candidate who has gained the Stock Prize on a previous occasion can again take part in the competition.

COMPETITION NEWS.

BIRMINGHAM.—The governors of the Bluecoat School, at their meeting on Tuesday, adopted the award of the assessors, Mr. G. H. Hunt and Mr. Charles E. Bateman, in the competition for a school to be built at Edgbaston. In the first competition twenty-three sets of designs were submitted, and the designs prepared by Mr. J. L. Ball, Messrs. Garrett & Simister, and Mr. Marcus O. Type were selected. In the final competition Mr. J. L. Ball's design has been accepted, subject to any alterations or modifications that may be found necessary. The accepted design shows accommodation for 180 boys and 90 girls, and the cost is estimated at about £50,000.

CALCUTTA.—The Committee of the Bengal Chamber of Commerce will select an architect for the proposed Royal Exchange, to cost about 4 lakhs, by means of a limited competition among not more than six competitors, who will each be paid a small honorarium of 600 rupees towards their expenses. No premiums are offered. The author of the successful design will be appointed architect. Mr. John Begg, F.R.I.B.A., consulting architect to the Government of India, will act as assessor. Applications had to be made by October 31.

CHESTERFIELD.—The Town Council have decided to obtain competitive designs for two public elementary schools, one to accommodate 450 children and the other 350. Mr. G. H. Widdows, A.R.I.B.A., architect to the Derbyshire County Committee, will act as adjudicator.

COVENTRY.—The Corporation have issued an advertisement inviting sketch-plans in open competition for a proposed technical institute at Pool Meadow, to be delivered not later than February 1. Further particulars will be found among our announcements under "Competitions Open."

HIGH WYCOMBE.—The Town Council have had before them the competitive designs for their town planning scheme. The adjudicator's report was received, and it was found that the awards were in the following order:—1, E. W. Turner, Sheffield; 2, S. P. Taylor, Harrow-on-the-Hill; 3, A. J. Dexter, High Wycombe.

MANCHESTER.—At the annual meeting of the Provincial Grand Lodge of East Lancashire Freemasons, it was stated that competitive plans for the proposed temple would be invited and submitted to experts.

MIDDLETON.—The General Purposes and Finance Committee have decided that the president of the Manchester Society of Architects be asked to nominate an assessor to assist the committee in obtaining competitive designs for a new town hall.

SCOTLAND.—Competitive plans are wanted for a proposed new Wesleyan Church at Findochty. Particulars can be obtained from Rev. J. Whitaker Bond, Wesleyan Manse,

Portessie, Buckie. The trustees do not pledge themselves to accept any plan submitted.

TORONTO.—The Imperial Trade correspondent reports in the *Board of Trade Journal* that a competition of designs for a Masonic Temple building to be erected in Toronto has been announced by the Masonic Temple Corporation. Designs will be received, up to January 20, 1914, by Mr. W. H. Best, 181 Avenue Road, Toronto, from whom further particulars may be obtained. The first prize will be the commission for designing and supervising the erection of the building. Three other prizes of 750 dols., 500 dols., and 250 dols. will be awarded. The estimated cost is to be about £51,400. The conditions may be seen by architects in the United Kingdom at the Commercial Intelligence Branch, Board of Trade, 73 Basinghall Street, E.C.

ILLUSTRATIONS.**CHURCH TOWERS, CHIPPING CAMPDEN AND EVESEHAM.**

THE sketches by Mr. Albert E. Lowes of these typical west-country towers may be considered as an addition to the "Sketches in the West Country" which were published in *The Architect* of September 26.

ALTERATIONS TO ELLESBOROUGH HOUSE, ROEHAMPTON LANE, S.W.

THESE alterations, which have recently been completed for Hugh Campbell, Esq., junr., consist of the entire renovation of the house, with an addition of an enlarged vestibule, so designed as to leave the old dome. A new inner hall has been formed with eight Ionic columns, panelled walls, and modelled plaster decoration. The palm house, 35 feet by 17 feet, is now being used as a lounge, with a new floor designed in Sicilian white and Belgian black marbles. A complete new system of electric wiring, drainage, sanitation, and heating was installed.

The general contractor for the work was Mr. J. Carmichael, of Wandsworth. The sanitary work, heating, and plumbing was carried out by Messrs. Dent & Hellyer, of London; the electric wiring by Messrs. Donnison & Sillem, London; the marble work and parquet flooring by Messrs. Burke, of London; the wrought-iron entrance gates, as well as the grates, door furniture, &c., by Messrs. Elsley, of London; Messrs. Farmer & Brindley executed the stone carving on entrance piers, as well as the plaster work to the inner hall, &c., all working to the designs and under the supervision of the architect, Mr. P. Estcourt Holland, A.R.I.B.A.

THE UPPER SHIP HOTEL, READING.

AFTER witnessing the changes of four centuries, "The Ship" was taken in hand about a year ago on the expiry of the lease and was rebuilt for the owners, Messrs. H. & G. Simonds, Ltd., owing to the street-widening operations required by the Corporation of Reading. The old "Ship" projected some five or six feet beyond neighbouring premises, and to bring it into line a large slice was cut from the front. The street façade is, therefore, new, and practically the whole of the hotel has been replanned and rebuilt to afford extra and necessary advantages and additional accommodation. More than half of the premises may be described as new, but many of the old roofs and floors were found to contain such a profusion of splendid oak and other good material that it was decided to make as much use of them as possible. In criticising the street front, therefore, it should be borne in mind that the positions and heights of the windows and the general disposition of the architectural features are dictated by the vertical walls and partitions within. In planning the reconstructed hotel the architects (Messrs. Webb & Sutton) took pains to preserve as far as possible the style and characteristics of the ancient building as well as to equip it with modern comforts and improved conveniences.

THE headmaster of the Metropolitan School of Art, Dublin, has written to the Dublin City Treasurer offering, with a view to popularising the art of mural decoration in Dublin, to submit designs for the decoration, free, by his students, of the panels under the cupola of the City Hall. The Corporation at their last meeting resolved to accept the offer, provided the designs were of historical subjects connected with the city, and that the Corporation approved of them.

THE ARCHITECTURAL ASSOCIATION.

THE annual general meeting of the Architectural Association was held at their premises at 18 Tufton Street, Westminster, S.W., on Monday, October 27. The chair was taken by Mr. W. Curtis Green, F.R.I.B.A., the President.

Mr. G. Leonard Elkington, F.R.I.B.A., read the names of forty candidates for membership.

The following gentlemen were elected:—Mr. O. H. Collins, Old Broad Street; Mr. J. A. Johns, Streatham Park; and Mr. W. M. Whitehead, Berkhamsted.

The President announced amidst applause the re-instatement to membership of Mr. Reginald Blomfield, A.R.A. He next proposed a vote of condolence to the relatives of the late Mr. E. A. Runtz, who had been a member of the A.A. for twenty-five years and took an active interest in it.

Prize List.

Mr. Curtis Green next distributed the prizes gained during session 1912-13 by the following students:—

D. E. Cruickshank, Banister Fletcher Bursary; A. S. G. Butler, "A.A." Travelling Studentship; W. W. Locke, "Andrew Oliver" Prize (second place, A.A. Travelling Studentship); R. M. Pigott, £30, and R. C. Clark, £20, Saxon Snell Scholarship; Piet de Jong, "Herbert Batsford" prize; W. H. Lloyd, history and freehand prizes, first year day school; F. P. M. Woodhouse, construction prize, first year day school; F. A. Eschawzier, studio and vacation work prizes, first year day school; N. F. C. Day, special prize, given by Mr. H. P. G. Maule, first year day school; J. Burford, Travelling Studentship, second year day school and A.A. two years' certificate; A. Stanhope Forbes, special prize, given by Mr. H. P. G. Maule, in connection with Travelling Studentship and A.A. two years' certificate; M. T. Waterhouse, end of session study, second year day school special prize, given by Mr. H. P. G. Maule, and A.A. two years' certificate; R. S. Wallace, Travelling Studentship, third year day school, and second prize test subject, third year day school; H. J. H. Dicksee, winner of "Jarvis" Scholarship, value £40, second prize third year day school Travelling Studentship, prizes materials and hygiene lectures; R. Haig Philp, first prize, test subject, third year day school, and prize intermediate construction; H. J. Tebbutt, prize for greatest progress, third year day school, and prize advanced construction; F. A. Addey, second prize for progress, third year day school.

E. A. D. Tanner, first prize, first year evening school, and prize Renaissance architecture; L. Claydon, second prize, first year evening school, prizes for elementary physics, elementary construction, and Greek and Roman architecture; H. A. N. Medd, scholarship, second year evening school, free pass to third year, and prize for Mediæval architecture; D. J. Gordon, Travelling Studentship, fourth year evening school, and certificate, Board of Architectural Education (four years); J. B. M. Walch, first prize, fourth year evening school; B. George, prize for Mediæval architecture and A.A. two years' certificate; A. S. Burnett, prize for steel construction.

A.A. two years' certificates have been awarded to the following: P. Butt, C. J. Brooks, J. H. Jacob, A. S. Furner, D. C. L. Derry, H. F. Gossling, and M. D. N. Koch.

Board of Architectural Education certificates (four years) have been awarded to H. D. Archer, A. B. Ll. Roberts, H. Fellowes Prynn, W. Harkess, and T. W. Dowsett.

Mr. W. CURTIS GREEN then delivered the following

Presidential Address.

Since the founding of the Architectural Association in 1847 it has been the custom to give up the first evening of the session to talk about ourselves and our interests, about the work that is done and that which is yet to do. The handing on of the traditions of the Association undiminished and, if possible, enriched is a trust in which we are all concerned; they are part of the creed of a great body of English-speaking architects. To some the Association is the home of their architectural childhood; for them it is the blue of distance; a music of thought, the tune of which everyone can understand, awakening the vain but delightful longing for the time that can never be again. To architects at home and abroad the Association is more than a school: it is a union, as old as the art itself, of men who understand one another and are drawn together by the same daily effort and the practice of the same art. We are sometimes told that architects should give expression to the spirit of the age; the *raison d'être* of the Association is to keep us in touch with the spirit of the ages, of which architecture is the temple.

Our meeting to-night is of those who have done, or who are doing, something for architecture, for the family name

and inheritance, and of those newly apprenticed to the art; a few of these bear names familiar to all of us, and we welcome the testimonial to the School that those names imply. Some of the younger men already enjoy the confidence of their elders and contemporaries, and they will soon be called upon to take a share of responsibility in the conduct of affairs; we have, as we are required, to attend committee meetings and do some part of the necessary routine. It is very easy to become absorbed in these things, and there is a danger lest we forget that they relate to architecture; yet when that is forgotten all is forgotten. You have placed me here to preside over the meetings this session. To share your confidence and to be numbered among those who have occupied this chair is no empty honour, and I am sustained by my belief in the cause by the goodly fellowship who serve with me, and by their determination to maintain and increase the usefulness and influence of the Association in all things affecting the art. It remains to be seen whether we can, consistent with efficiency, reduce the number of routine committee meetings so that they may be fully attended, and the business despatched represent the work of every member entrusted with it.

By changes in the House List the Council loses the services of Messrs. Tapper, Brewer, and Bolton, who have given generously of their ability and time to the affairs of the Architectural Association. Mr. Brewer continues on the editorial staff of the "Sketch Book," which has never been in better hands than it is now, and he also remains on the School Committee. The Council is strengthened by the return of Mr. Clapham and by the addition of Mr. Slater and Mr. Mackenzie. Mr. Slater has succeeded Mr. Cart de Lafontaine in the arduous labour of editing the Journal, and Mr. Cart de Lafontaine becomes an ordinary member of Council.

Our membership shows a decline of fifty during the year. We have lost by death a number of distinguished members—amongst others, T. H. Watson, President in 1870-71; E. B. l'Anson, Vice-President 1880-81; and W. G. B. Lewis, who did so much in his time for education. Of the younger men prematurely taken from us are R. F. MacDonald and J. M. Whitelaw. The gifts of the latter marked him out as a student of promise—some of us thought of genius. To these losses we must add the annual drain—unusually large this year—of those who fall out by the way, either through ill-fortune or because they have found more congenial outlets for their activities. We have enrolled sixty-six new members, and our membership is now 1,556. Every calling has its waves of popularity. It is noteworthy that architecture is no longer the easy means of livelihood it was for a time, and that as the standard of education goes up the number of recruits to the ranks goes down and their quality improves. Parents are now suspicious of the tag, "And if your son of dulness you suspect, a parson make him or an architect." And as the nature of the calling is understood the winnowing process will be more thorough.

As regards finance, I have not time to say much, but let me briefly point out that the position of our School in this respect is very different from that of others. Other recognised schools of architecture have behind them the resources of a University, of a Government Department, a County Council, or a wealthy Corporation like the Royal Academy. The Association has obligations to its members—wide obligations—in maintaining its School of Architecture at the highest pitch of efficiency, and obligations to those who man the ship and are dependent upon it for a livelihood. Its resources are practically limited to the annual guinea and half-guinea that its members pay as their subscription, and this is absorbed by the general working expenses. The School is not profitable, so that the margin of expenditure over income is far smaller than it ought to be. We are able to pay our way by careful—perhaps too careful—stewardship, but we are unduly hampered in many directions in the School by lack of funds. We have the cordial support of our parent, the Royal Institute of British Architects, in carrying out their programme of education, and we feel confident that they will eventually see their way to making an adequate grant towards that work.

We are allied by mutual concessions with the Royal Academy Architectural Schools, and are the reservoir from which that school draws its talent and its prize-winners. The Association provides the material, the environment, and the necessary freedom for natural development. It has been left to architects to build up the most considerable school in the country—a school of inestimable value to architecture as the only representative school that is managed by architects without outside control.

We have seen at home and abroad that within certain limits and with the fatherly guidance of the leaders of the profession a great school of architecture can only be run by men who are still students themselves. Endowed institutions in London have tacked on to their other educational facilities schools and classes in architecture, but with them architectural education is a matter of secondary importance.

The allocation of part of the Henry Jarvis Bequest to the School by the trustees, at the recommendation of the Royal Institute of British Architects, and the legacy of the late Mr. William Glover are events that we gratefully record this year.

We have made several minor improvements to our premises during the session out of the general funds.

The Council has for two years been giving consideration to the question of premises, which will become acute with the expiration of part of our lease in two or three years' time. This will give us the opportunity to put our house in order and extend and rearrange the space, which is now insufficient and inconvenient, whether we consider it for school purposes or for our own meetings. The Council has invited Mr. H. Austen Hall, who has already done so much for the Architectural Association, to prepare a scheme for extending and altering the premises.

We do not think the present time is one in which we can begin a campaign for this purpose, but our policy is to know what we want, and to be ready to put forward a definite proposition when the time is ripe. The work that is done here will sooner or later receive the recognition it deserves. The foundations are wide and deep, and will bear a fine superstructure if those who have done so much to build them are faithful to the work to which they have once set their hands.

There are now sixty-five students in the day school. The two events of the School year, both of which have been fully dealt with at other meetings here, have been the addition of a third year's course in the day school and the retirement of Mr. Maule from the headmastership, a position he has filled with so much advantage to the School for the last ten years. The Council are happy in having secured Mr. Robert Atkinson to take his place, and believe that the work which Mr. Maule has laboured at so strenuously and with such unselfish devotion will be carried forward by Mr. Atkinson one step further towards the end we have in view. Mr. Atkinson has begun under the happiest auguries. The third year course, for which he has been responsible from the first, has been an unqualified success. Beginning with twelve students, it now numbers twenty-three, two of last year's men having decided to stay on for another year before passing on to the R.A. Schools and to office experience. I feel sure that as the work done in the third year becomes more known men will join it in increasing numbers. The School is fortunate in its masters—in Mr. Varndell, from whose work here we are learning by experience to expect great things; in Mr. Potter, master of the first and second years; in Mr. Cable, who pilots the third year's men; and in Mr. Buyers Scott, in charge of the evening school. I do not suppose the history lectures have ever been in better hands than those of Mr. Fyfe, Mr. W. H. Ward, and Mr. Aymer Vallance. The Council attach great importance to the water-colour class, under Mr. H. F. Waring's guidance. Having decided that it was advisable to limit the number of those attending it, they joined almost to a man, so that it was last year, I believe, impossible for anyone else to take advantage of it.

Another event in the history of the School must be recorded—the appointment of a Registrar. Our Registrar, Mr. Scott Holmes, has had to create this position—no easy task for a layman unacquainted with a school of architecture. It is early days for us to reap the benefit of Mr. Scott Holmes's labours; we are beginning to do so, and I feel sure that the Registrar will become indispensable to the Association and to the cause of architectural education.

Those who, in the service of art, are giving the best of themselves to education are, in spite of the discouragements through which they can only just "slog on," doing a great work; they are laying a foundation for others, and perhaps for themselves, on which achievement may securely rest. We wish all success to these gentlemen, and particularly to Mr. Atkinson in his new duties. They have, and we must let them feel that they have, every member of the Association backing them up.

The exhibitions have been very successful, particularly the exhibition of French drawings held in May. Monsieur Cambon, the French Ambassador in London, attended and formally opened the exhibition. The President, Monsieur Defrasse, and a number of members of the Société des Archi-

tectes Diplômés came over from Paris, and were our guests at the annual dinner. It is possible that the Association will pay a return visit to Paris next year on the occasion of an exhibition of English drawings which it is proposed to hold there.

The library has been more used this session. Mr. W. G. Newton, the Hon. Librarian, has initiated a change whereby the larger and more valuable books now in the Reference Library are to be moved to the bookcases on the Upper Gallery, where there will be a large table and good light. Acting upon Mr. Atkinson's advice, the Council is spending considerable sums on books for the use of students of the School, and these need only to be seen for their value to be appreciated.

The Spring Visits Committee arranged a number of interesting visits to new buildings, finished or in course of construction. These visits keep us acquainted with one another's ideas and methods, and are healthy occasions for all concerned. The annual excursion in August made their headquarters in Rouen. A foreign programme is a pleasant variety every few years; I am afraid it involves much more work for the indefatigable Hon. Secretaries, Mr. Talbot Brown and Mr. Hemmings, to whose assistance Mr. Clapham has now come as London Hon. Secretary. A full account of the week appeared in the Journal. To those, like myself, who were present it is a pleasant one to look back upon. The younger men, I am afraid, regard the excursion as little more than an expensive week's travel, and do not come in any number; if more of them put this to the test of experience they would find there are compensations even for comfortable quarters and a well-arranged programme. Just as it is well to play games with those more skilful than oneself, so it is better to visit great buildings with those who bring a trained and mature mind to bear on them.

As you are aware, the Council early in the session gave consideration to the position of architectural assistants under the National Insurance Act, and, having concluded that it would be to the advantage of architects' assistants to form an Approved Society, the Council approached the Royal Institute of British Architects, the Surveyors' Institution, the Society of Architects, and the Quantity Surveyors' Association with a view to securing their co-operation. As a result, the Architects' and Surveyors' Approved Society was founded. Considerable financial support was afforded by the various institutions concerned in the formation of the Society, the Association making a donation of £20, and, in addition to this, granting the new Society the free use of an office in these premises. The Council understands that the Society, which has a committee of its own of representatives of the two professions concerned, is working very successfully, having a membership of upwards of 1,800.

I have already spoken at some length of our affairs, which cover a wide field. I have not touched some of the most interesting sections, such as the Camera, Sketch, and Debate Club, where men are encouraged to give expression to their views in debate unhampered by the ordeal of seeing their utterances in print. The Club does much to stimulate students with their cameras and sketch-books. Then there is the Athletic Club, with all its branches, which looks after the holiday and sporting side of our existence—one of the utmost importance, for the work that we can do is dependent upon proper recreation. If future legislation is to encroach upon our personal liberty, I should like to see it take the form of prohibition of all work on Saturdays, and enforced attendance at the cricket or football field, unless on *excuse* for sketching and measuring. Architects are nothing if they are not good sportsmen; if we sit down and consider it, we are conscious of neglected personal talent which only needs the right atmosphere to develop. The right atmosphere can be found on our club ground at Elstree. The club has secured delightful grounds of its own, and built a spacious pavilion; from what I have seen of it it is admirably managed by the committee. It is in a very flourishing condition, save only that it is in urgent need of donations to pay off the debt on the ground, amounting to several hundred pounds.

I might now follow, as a shadow, Past-Presidents of the Association, and discourse on what an architect should be, what he should know, how the technical knowledge should be gained, and how the artistic qualities necessary to the formation of an architect may be developed. I shall not attempt this; the modern student chooses his own school and goes to the fountain-head of the school for knowledge. Moreover, the facts he has to master may be read in the Syllabus of the Board of Architectural Education, printed in the *Kalendar* of the Royal Institute of

British Architects. This Syllabus embodies the wisdom of a long line of distinguished men, and deserves the closest attention; it is a bare statement of the qualifications necessary for the practice of architecture, and is silent on the qualities necessary in the man. It supplies the details, but not the background. It is of this background that I propose to speak, bearing in mind that we are living in the twentieth century—a time of apparent contradictions and unsolved problems.

Nowadays equipment is only a matter of proper guidance and of continuous hard work, and, in the words of Pericles, "Our trust is not in the devices of material equipment, but in our good spirits for battle." A limpet-like tenacity to hold on through disillusion and failure, the courage to face the facts and to use them, combined with that humility of mind which wins the confidences of the Mistress Art, are necessary to those whose destiny it is to serve her, for architecture is not merely an exacting mistress, she is elusive, rejecting sometimes even those having on the wedding garment. "Many knock at this door and ask for her and turn away in despair," and this, perhaps, from not realising that if we are to vitalise tradition it must be for new uses and by bringing new gifts. The goal lies ahead, not behind.

The Indian poet might have had architecture in his mind when he wrote: "It seems that there is a break in the chain of light, and that one of the stars has been lost." And, after describing the search for that which, through neglect, was lost to sight, he continues: "Only in the deepest silence of night the stars smile and whisper among themselves. Vain is this seeking. Unbroken perfection is over all." That is no bad suggestion of the position following after the fall of the first of the arts from her pre-eminence. It is noteworthy that architecture touched the lowest point during the most remarkable century in history. In the nineteenth century channels of thought and methods of work changed fundamentally. It became the turn of science and invention to advance the race. The nineteenth century moved to a new impulse—scientific, not artistic; the scientific mind necessarily regards tradition with suspicion, yet, serene as are the heights of science, she cannot supplant the arts in their ultimate supremacy over the mind. Mr. Thompson, the scientist writes: "Routine skill, scientific skill, and artistic skill form an ascending series of human power and activity. For true art, in whatever occupation it may be developed, is the final and highest expression of our whole character, powers, and personality—whether the artist be a handicraftsman, a headcraftsman, or both." That is a generous admission from science, and one that, I think, would not have been made sixty years ago.

With every considerable change, however beneficent it may ultimately be, there is always an evil time to live down; such a time of change we are undoubtedly passing through, and the sacrifices involved sometimes appal us. During this time there have always been men in perfect correspondence with architecture, though their output has been small compared to what it might have been had they lived at a time secure in the possession of a tradition and assured of a constant demand and constant appreciation. It is early yet to see clearly what the nineteenth century has done for art; it may be, in the words of Pater, writing of the fifteenth century in Italy: "By hastening the decline of art by withdrawing interest from it, and yet keeping unbroken the thread of its traditions, it had suffered the human mind to repose itself, that when day came it might awake, with eyes refreshed, to those ancient, ideal forms."

The new industrial system, the most far-reaching product of the last century, has yet to make good, if I may use an Americanism. It replaced wherever possible the delicate skill of the human hand by inhuman machinery, and the best craftsmen of the day turned all their great ability to perfecting these new machines, to the apparent undoing of the older arts; in the fifteenth century came the books, in the nineteenth the machine. Both were revolutionary, both have come to stop and have to be hitched to the star of architecture. For a period of transition such as this Montaigne's advice is noteworthy. "We must," he says, "live among the living, and let the river flow under the bridge without our care, above all things avoiding fear, that great disturber of reason." We may not be able, like Montaigne, to "slumber tranquilly on the pillow of doubt," and we do not give way to pessimism or under-value the opportunities that are ours. We are confident of the ultimate supremacy of art.

In the revivals of the last century there were both a necessity and a weakness—the necessity of satisfying a need and of expressing new thought in forms to which the eye was by happy association accustomed, and the weakness inherent in human nature of looking backward instead of forward. In a country with a history like that of Europe the tendency is to live on the past, first on one phase of it and then on another. The changes were at such a pace that even culture tended to regard all things and principles of art as inconstant modes or fashions. All that is of the past. We are recovering our balance; we have learned that revivals are merely stop-gaps; that a thing can only be done once, and that we cannot recreate the past. That curious haunting sense of magic surrounds and is inseparable from the life as well as the art of the Greeks, the mediæval craftsmen, and the masters of the Renaissance. Those who still put their hope in revivals are not in love with architecture, but with their own ideas of what architecture ought to be. "When the half-gods go the gods arrive," for it is our experience that there is always something better than we saw at first.

We are all hoping for the time when we shall express ourselves in a common language, though it is possible we attach too much importance to this; and in the meantime it is well to recollect that other centuries have in periods of transition expressed themselves without the slightest cohesion of style. "St. Mark's, Venice; St. Ambrogio, Milan; Pisa Cathedral; and San Miniato, Florence, are, for example, contemporary churches."* When the time was ripe these experiments gave place to a common outlet congenial to it. Who is to say that the world is not the richer for the experiments of transition?

We have for some time been seeking a common outlet by turning our attention to the sources of our inheritance. Anatole France predicts that: "The ages to come will repeat that fruitful art came to the sterile West from Athens and Rome, and those among us whom the voice of the day exalts will to-morrow be forgotten, because they ignored this. The hackneyed path which they press in crowds leads them to fortune and applause, but noble thought and noble language will not be trampled upon by them without taking their revenge."

I have before this quoted the American artist, Kenyon Cox, who shows how much easier it is to find a new way of being bad than to master the old way of being good, and that the new bad thing is, at any rate, sure to be noticed. He, too, pleads for the classic spirit; he says: "The classic spirit is the disinterested search for perfection; it is the love of clearness and reasonableness and self-control; it is, above all, the love of permanence and of continuity."

Fortunately history is now being written and taught as a continuous development; the old watertight compartments have broken down. Pagan and Christian art are no longer harshly opposed; we observe the identity and continuity of European culture; to this deeper view the periods of quiescence or transition are not full stops; we have only recently learned that Greek art was the culmination of centuries; we have still some of us to realise that the Renaissance was the uninterrupted effort of the Middle Age, and that Michel Angelo and Piranesi were romanticists on one side of their nature.

The classic spirit, then, embraces the whole field of excellence; it breathes alike in the classic temple and the Christian church, and pervades the best of our own work; it is above the frailty of processes and systems, the accidents of time and material. That the evolution of style must be slow is obvious; to assume that it will be a return to any past phase of expression is illogical; to believe that it will be connected with all that is noble and lovely in the works of the past is reasonable.

If ours is not a time congenial to the arts it is one full of possibilities; we only advance because difficulties present themselves; we do not want for opportunities, rather do we want power equal to our opportunities. If it is true that genius leaves no mark of effort, it is equally true that effort marks the great periods of art.

We have precious gifts placed in our hands; culture has been back to its sources to be clarified and corrected; it no longer represents this or that phase of the past; it is a conscious tradition representing the sweetness and light of the classical world and the strength and daring of the Middle Ages. It is indebted to science for a wider horizon and in a complex world for the certain knowledge

* *Italian Renaissance Architecture*, Anderson.

of the inter-relatedness of things, and not least for a sense of pervading order to support our faith.

Pater has said that the basis of all artistic genius lies in the power of conceiving humanity in a new and striking way; of putting a happy world of its own creation in place of the meaner world of our common days; that view has perhaps given too much prominence to the personal view of art, which characterises every transition stage.

To close in the same didactic vein as I have fallen into, I will quote two verses of Mr. Roger Heath's:—

Preserve our age from every eccentricity,
From subtle decadence and false æsthetic,
That we may follow beauty and simplicity,
Knowing the truly pleasant and poetic.

And lest the powers of darkness should allure us
With popular ideas and siren rumour,
Give us this triad that shall save and cure us:
Fresh air, cold water, and a sense of humour.

DISCUSSION.

Mr. Reginald Blomfield, P.R.I.B.A., said that it was a very great honour for him to propose a vote of thanks to the President, because he was in point of fact the junior member of the Association. He felt very much gratified at having been reinstated as a member, as he was not aware that the honour would come so soon. He would like to congratulate Mr. Curtis Green very much on his address, which was an extraordinarily suggestive statement, and than which he had seldom heard one more pregnant of fine thought expressed in befitting terms. In accordance with precedent, Mr. Curtis Green had dealt first with the position of the A.A. When one heard that it dated back to 1847 it became easy to realise what an extraordinary thing it was that the Association should still be so active and so prosperous. Mr. Green had called attention to the esteem in which the Association was held by its own members, to the work done in the schools, and to its difficulties; he then turned to the Institute, saying that that was the parent body. And so it was. Being a parent body, the Royal Institute had to take the somewhat wide and responsible outlook of parents. Mr. Curtis Green had turned to the Institute for help; the members might rest assured that everyone at the Institute felt a very sincere sympathy with the work of the A.A. and with its success and prosperity. It might again be hinted that parents have a somewhat wider responsibility than falls to the Association; nevertheless, the Institute would do their best to help, and the appeal would not, he hoped, be made in vain. Mr. Green said that the A.A. was the only school in this country which was conducted for the training of architects by architects; well, those who were attached to the little school of architecture at the Royal Academy hoped that they, too, were architects. The address had touched upon so many points that it was impossible to do justice to it, and it was to be hoped that they would be able to read in print what he said. Mr. Green, being a good sportsman, led off with a "sixer," in saying that architects were not concerned with the spirit of the age, but with the Spirit of the Ages. Critics of architecture told them they did not work quick enough. Architects were quite content to take their place in the line of very great succession. They looked to the future and they also looked to the past; their concern was with the ages, though this particular age was very vital to them. Architects were nothing unless they were good sportsmen. That was a quality which the Association certainly possessed, for last summer the Institute played them at cricket and, though doing their best, the seniors were beaten. He might add that in all his experience he had never taken part in a more sporting game. But good sportsmanship possessed a wider significance than games. Both the sportsman and the artist pursued a thing for its own sake; that was the aim and ideal of every artist and essential for every sportsman. Another side was the chivalrous sense of honour and comradeship—a point which in the turmoil of modern life required to be insisted on. Many occasions would turn up in their later life when they could show a true spirit of sportsmanship. Mr. Curtis Green pointed out that Classic architecture was not the mere repetition of Classic detail and the piling up of orders, but that it was the spirit behind it. This meant that the work should be guided and directed by a pervading sense of proportion and balance. If they looked at any fine building they would find that its great quality was a certain all-pervading sense of serenity which did not hurry or shout. It avoided dull pedantry and any foolish hustling for originality.

Mr. Gerald C. Horsley, F.R.I.B.A. (retiring President), in seconding the vote of thanks, said that the President of the Royal Institute had drawn attention to the essential parts of Mr. Green's address, and showed how valuable it had been. In the first part Mr. Green gave them an admirable exposition of the policy of the Architectural Association, and in the second part a most illuminating picture of his views on architecture and how it should be studied. At first it seemed as if he was going to be a little diffident, but fortunately Mr. Curtis Green was soon launched fully into his subject. The giving of an annual address by the President was of the utmost value to all the members. They should remember that the audience that was being addressed was not merely those present in that room, nor even the members in the United Kingdom, but that the audience extended to the Far East and the Far West, to India and Australia. Such words as had been given them that night would be of the utmost value and interest, and arouse enthusiasm in men who look forward to reading what the President of the Architectural Association has to say in Tufton Street when the reader himself may be thousands of miles away. He could only join in congratulating Mr. Curtis Green, and in wishing him a very happy and prosperous year of office.

Mr. E. Guy Dawber, F.R.I.B.A. (Past-President), said he would like to associate himself with the vote of thanks for a most admirable address. Though he had listened to a great many presidential addresses, he had seldom heard one more full of interest, suggestion, and thought. He would also like to congratulate the Association on having such an able and admirable President for the next two years—as it went without saying that Mr. Green would be asked to occupy the chair for two years. He was sure they would see great strides in the work of the Association. In Mr. Green they had a good architect who carried out in practice all his theories and whatever he may preach. They all admired his work. They were also pleased in having back an old member like Mr. Reginald Blomfield.

Mr. H. Austen Hall, F.R.I.B.A. (Vice-President), thought they could congratulate Mr. Green on his address and themselves on having him as President. Mr. Green's work as an architect was well known, but its mature culture might not be so generally recognised. The council were particularly happy to serve under him, and they felt sure that under his leadership the best traditions of the past would be maintained. They were accustomed in presidential addresses to hear details of their own work, but Mr. Green had gone above those things. It had been said that children wanted to hear about giants and castles rather than about facts. So they at the Association felt they could give play to their imagination and allow their thoughts to fly higher than their practical work. The present council was a very young one, and that was a very strong point, for they knew the difficulties of the students and what they had missed themselves. Every member of the council felt they could do something to help by their experience. There were a great many institutions which prided themselves on their length of years, but concerning which some irreverent persons declared that they had been dead all the time. The point with the Architectural Association was its vitality and continuity of development and activity.

Mr. Maurice E. Webb, M.A., F.R.I.B.A. (Vice-President), said as another member of the council he wanted to tender his congratulations to Mr. Curtis Green and to echo Mr. Hall's remarks as to the absolute homogeneity of the council, which was one with their President. One of the first things Mr. Green did was to reorganise their price-list. He would like to make one point, and that was that it would be much more amusing and exciting if the prize-winners could get their prizes on the same day as the award in July instead of having to wait for them till October as now. An old friend had told him that evening that the A.A. was the only architectural body that was alive. He hoped that next year it would be more alive still. Things had changed from the days when a workman, on being told by his mate that the man on the scaffolding below was the architect, said "Let's heave a brick at him!" He believed that the British workman respected the architect more than he did, and that the public did so too. The Architectural Association was meant to give as sound an education as possible, and Mr. Green was just the man to see to it.

Mr. Curtis Green, in responding, said that not the least interesting part of the Association's annual prize-giving was the speeches coming after it. For they bore

spontaneous witness to the condition of the A.A. at the time. It was a very happy circumstance for the Association that the President of the Royal Institute of British Architects should be there that night, and they heartily desired the paternal blessing. Mr. Blomfield was a man of wide sympathies and many activities; in fact, he was just now the father of all the things that interested them apart from the A.A. They of the Association were tempted to cry as Esau, "Bless even me, oh father!" Mr. Blomfield had blessed them. With regard to the Royal Academy School of Architecture, he could not help thinking it would be a most happy day for architecture when it became more closely allied to the Association than it was at present. Those of them who had been so happy as to be associated with Mr. Horsley during his two years of office are not likely to forget them. There was one thing which Mr. Horsley did—and it was very characteristic of him that it was done at the end of his term—and that was to provide the beautiful presidential badge designed by Professor Lanteri. Mr. Horsley chose for the symbol "Architecture Enthroned." The badge was so heavy he could not help thinking Mr. Horsley was feeling at the time the weight of his responsibilities and wished his successors to have some tangible reminder of their duties. He had to thank the audience for the way in which his paper had been received, and those gentlemen who said so many kind

It was not for want of a knowledge of the processes of inlaying that this mode of decoration was not employed in the architecture of antiquity, as the damascened jewellery for instance, shows how thoroughly it was appreciated and how skilled were the craftsmen in its execution; moreover, half the process, the sinking back of the face of the stone to receive colour, as in the hieroglyphs, was common to Assyrian and Egyptian buildings. The nearest approach to anything like architectural inlay is an attempt to relieve the monotony of, and perhaps at the same time to strengthen, the mud and concrete walls still to be found in Chaldæa and Rome. Of the former, a most remarkable example was discovered by Loftus at Warka (fig. 1), of uncertain antiquity, where cones of terra-cotta, having their bases enamelled in various colours, were driven into the face of the mud wall and so arranged as to produce set patterns. In Rome a similar arrangement occurs in the *opus reticulatum*, though this could scarcely have been intended for decorative purposes, since it was generally covered with a coat of plaster. A fine example of this mode of treatment is seen in the remains of the Servian agger (fig. 2) uncovered in recent years on the Esquiline.

In dealing with the subject of inlay we must divide it into two parts on account of the two entirely distinct modes of treatment which were adopted to effect it, both sometimes occurring in the same building, but differing both in the

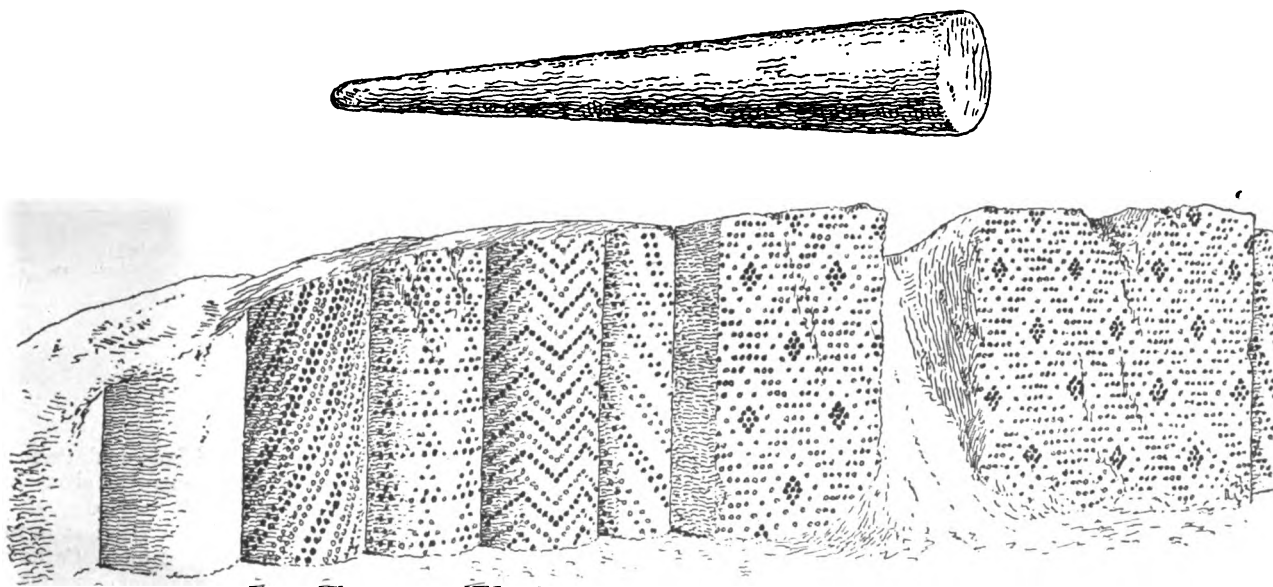


FIG. 1.—INLAID MUD WALLS, FOUND AT WARKA OR ERECH IN CHALDÆA (From Loftus).

things. It was, of course, an evening when many kind things were said; but it was very nice when one's turn came to listen to them.

The next meeting will be held on November 10 at 8 p.m., when a paper by Mr. H. M. Fletcher, M.A., F.R.I.B.A., will be read, entitled "Nationality in Art." Adoption of the council's report and balance-sheet for session 1912-13.

ARCHITECTURAL INLAY.—I.

By J. TAVENOR PERRY.

THE employment of inlay for surface decoration has had no regular sequence, and has not been common to all architectural styles and periods; but having been entirely sporadic in its appearances, influenced mainly by available materials and locality, it has not received the attention it merits in the literature of the profession.

Superficial decoration by the application of one material to another is divided between inlay and incrustation; but in the French language the latter word has to do duty for both. Hence we find jostling each other under the same heading mosaics and veneers of marble on the one hand, with *pietra dura* and incised work on the other; and two processes of a widely different nature treated as if they were varieties of the same thing. The true meaning of the word as used by us is clearly defined by Dr. Murray, in his English Dictionary, as "To lay or embed (a thing) in the substance of something else so that its surface becomes even and continuous with that of the matrix"; and in strict accordance with this definition we propose to deal with the subject.

materials and the method of application, although each requires in the same manner the cutting back of the surfaces of the principal material, and the preparation of a matrix to receive the inlay. The difference between the two processes consisted in, in the one case, using a material more or less fluent or plastic, which hardened by time or cooling. and, in the other, a material already prepared and cut or made to fit the matrix, such as marble or tile; and as the effects so produced varied essentially in method and result, we shall deal with each of them separately.

The plastic materials which were used to fill up the matrices were either metal or, more generally, a cement composed of an admixture of plaster and resin or bitumen, with some colouring matter such as an oxide of iron to give it the desired tint. The advantage of such a substance over marble or tile for the inlay was in its adaptability to the contours of the various shapes of the enrichments, permitting them to be as flowing or intricate as was thought desirable; and this is quite sufficient reason to account for the considerable vogue it obtained wherever inlay was employed as a decorative feature. The great value of this sort of inlay for interiors where the light was very subdued and where, from want of shadow, ornament in relief would be quite thrown away, was early appreciated; and for much the same reason where coloured marble revetments formed the main scheme of decoration, the strong relief of inlay brought out the delicate lines of ornamentation in bands and friezes dividing the large spaces of flat colours.

The earliest instance of its use in Byzantine architecture to which we can refer is the frieze of rich ornament which runs round Sta. Sophia, Constantinople, below the springing of the great arches of the dome, a position in which any

other mode of delicate decoration would have been quite lost, both on account of its height, some 150 feet, and the deep shade in which it lies. Inlay thus used entered largely into Byzantine architecture, and may be seen in many buildings; and one of the best examples of its value as a foil to marble revetments is found in the greater church of the Monastery of St. Luke of Stiris in Phocis (fig. 3), which has all its wall surfaces covered with coloured marbles and this deep frieze of black inlay of rich design running between them above the lower arcade.

This mode of filling up incised ornaments with a composition was not, moreover, confined to stone or marble, but occurs on the numerous bronze doors manufactured in

ecclesiastical furniture; and thence it passed across the peninsula and became extensively used on the floors and façades of the Romanesque churches of Tuscany and the neighbouring States.

The materials of which the Apulian inlays were formed differed from the Venetian, as they were a sort of stucco composed of brown wax and pounded marble; while the matrices were less deeply sunk, and were scooped out very much in the manner of forming the cells in champlevé enamel. In the Apulian churches the ambones, cancelli, episcopal thrones and all such furniture are richly decorated with inlay, sometimes relieved by the insertion of small spots or bosses of polished marble, such as giallo-antico and

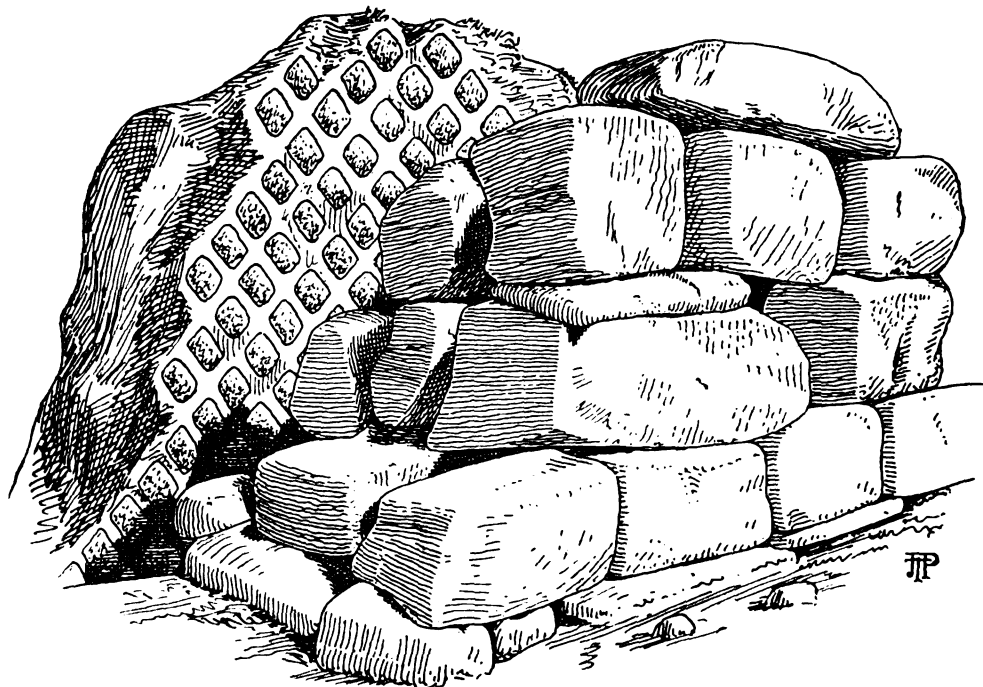


FIG. 2.—OPUS RETICULATUM, SERVIAN AGGER ON THE ESQUILINE, ROME.

Constantinople and exported to southern Italy, Venice and Russia. As thus used it formed a sort of coarse tarsia-work, more generally known as damascening, an art evidently derived from some foreign source as its workers were denominated *Barbaricarii*. In reference to the decoration of these bronze doors, it may be mentioned that the materials used to fill in the matrices were the same as those employed

violet breccio, as is the case with the episcopal throne in the treasury of St. Nicholas at Bari, executed about 1098, and that in the grotto of Monte Sant' Angelo. Of this Apulian work an example of exceptional richness is to be found in the ambone and screens of Bitonto Cathedral, bearing an inscription showing it to have been executed by



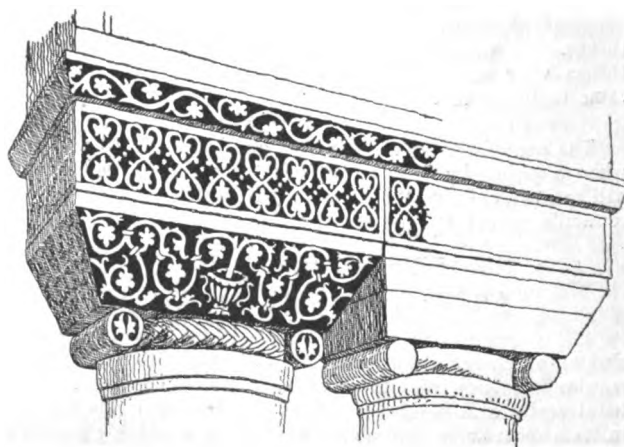
ST. LUKE OF STIRIS IN PHOCIS
(FROM MILLET)

FIG. 3.

for stone and marble; but where metal was used with the bronze it was generally silver and the cements were much more vividly tinted.

The extensive use of inlay for decoration in St. Mark's, Venice, arose no doubt in consequence of the importation from the East of details, such as capitals and dossierets, already so treated, and its evident value in so dark but richly adorned an interior. It occurs chiefly on the abaci, dossierets and such smaller details; and the way in which it is employed is well shown in the example we give of two capitals in the triforium gallery (fig. 4). The cement used for the inlay at St. Mark's is generally of a deep brown tint, produced by sesquioxide of iron, which forms about a fifth of the composition, the remainder being plaster with a slight admixture of some resinous substance.

As we have already said the occurrence of this peculiar form of decoration is very sporadic, and thus it is only to be found in certain parts of Italy. Isolated instances of its use occur at Ancona, but otherwise it skipped from Venice over the intervening Adriatic provinces to Apulia, where it became a marked feature in the ornamentation of



ST. MARK, VENICE
(FROM BÉCULE)

FIG. 4.

one Master Nicola in 1229. We give an illustration of two panels of the screen which display the beauty of the work, and show the distinctly oriental origin of the design (fig. 5).

The isolated case of the use of inlay which occurs in the church of St. Ciriaco, Ancona, in various screen work may have been, in part, a survival from the more ancient church destroyed by the Saracens in the ninth century. In this we find that the matrices have been sunk to a depth of nearly half an inch, and the cements show some variation of tint between the aureoles and the general background. The

cancelli have the panels filled with figures of saints and angels, while the other screens have birds and beasts in

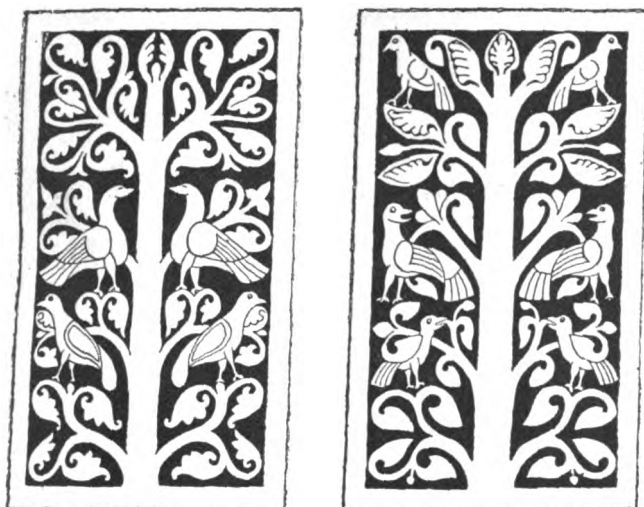


FIG. 5.—ITALIAN SCREEN PANELS.—DUOMO, BITONTO.

pairs, arranged symmetrically in the manner of oriental stuffs, and of these we give an illustration (fig. 6).

We may mention here in reference to these coloured inlays that a very common mode of decoration at Damascus and elsewhere in the East, was formed by sinking back the face of the stonework and filling in with a hard cement of various tints of red, blue, yellow and black, which produce a most effective style of ornamentation.

All the Italian inlay we have been hitherto describing has been on a comparatively small scale, but on the western side of the peninsula we find that it was extensively employed to decorate the external walls of buildings. But perhaps, even there, it was first employed in ecclesiastical furniture, as we find it on the ambones of Barga, San Miniato, and along the Val d'Arno; but it reached its fullest development on the façades of the churches. Perhaps the earliest of these is on the front of San Miniato, Florence, where it appears in conjunction with marble inlays; but the designs betray the same oriental feeling as those in the screens of Ancona. The most important examples of the work, however, are to be found on the west fronts of the



FIG. 6.—ITALIAN SCREEN PANELS.—DUOMO, ANCONA.

Duomo at Pisa, and the Duomo and San Michele at Lucca. In the Lucca examples the whole of the space over the arcades, and in many cases the columns as well, were covered with birds and beasts of a grotesque character, intermixed with conventional foliage, all silhouetted against the dark background of the inlay. In the course of centuries exposure to the weather most of this inlay had fallen out, and the walls presented a pitted surface covered with an uncertain design, but of late years all this work has been renewed; and many who have seen it in both conditions may regret a somewhat staring garishness in its restored state (fig. 7).

But it was not only on Tuscan façades that this decoration played so prominent a part, but in the remarkable series of pavements which took the place, in many of the churches, of the more usual and ancient marble mosaics. The most important examples of these are to be found in the Baptistery of Florence (fig. 8), and in the church of

San Miniato (fig. 9), of each of which we give an illustration. The greater part of these seem to have been executed early in the thirteenth century; and the cement used in



SAN MICHELE LUCCA

FIG. 7.

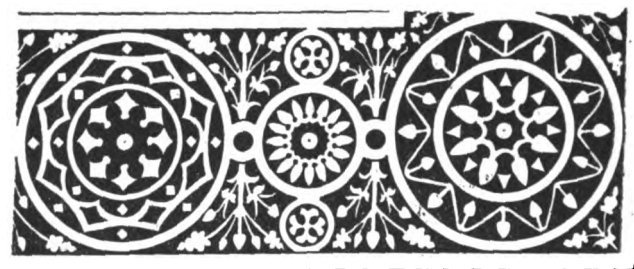
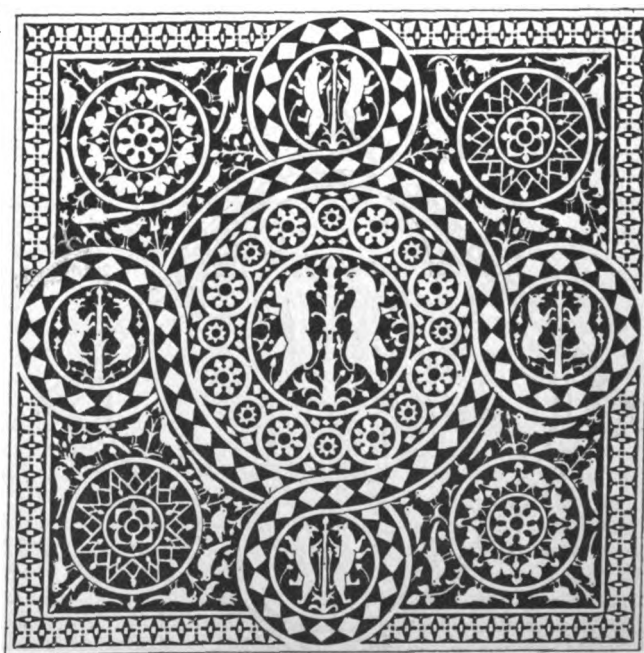


FIG. 8.—THE BAPTISTERY, FLORENCE.

It is easy to understand how a knowledge of this mode of decoration reached the banks of the Rhone from Italy, though it may appear strange that, the secret having been once acquired, its application should have been almost con-



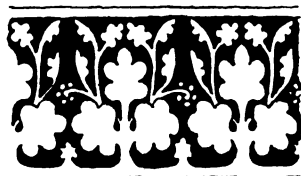
SAN MINIATO

FLORENTINE PAVEMENTS

FIG. 9.

finned to three buildings, the Cathedral of Lyons, and St. Maurice and St. André-le-Bas at Viënné. The work at Lyons and at St. André-le-Bas belongs to the close of the twelfth or early part of the thirteenth century; while that

in St. Maurice may be fifty years later. Although the general character of the designs is similar to contemporary French decorative work of the period, in the arrangement of the numerous animal forms some trace of Apulian, if not Byzantine influence is apparent; while the position of the friezes in which the inlay mainly occurs is very unusual, and can only be compared to those of Sta. Sophia and St. Luke of Stiris already mentioned. For comparison with the latter (fig. 3) we give a frieze from St. Maurice (fig. 10).



ST MAURICE, VIENNE
(from BÉCULE)

FIG. 10.

Although inlay for mural ornament was almost confined to one locality in France, its use on tombs and pavements was much more general, and was possibly in no way the result of foreign influence or importation. Both Celtic and Teutonic craftsmen were well acquainted with the art of inlaying, not only in their bronze work and jewellery, with

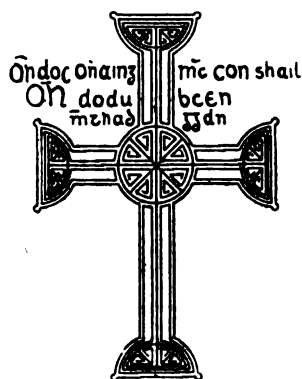


FIG. 11.—CLONMACNOISE CROSS.

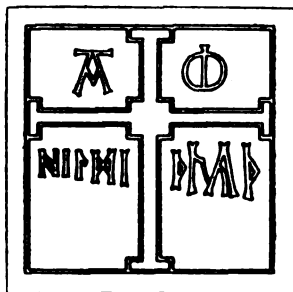


FIG. 12.—HARTLEPOOL CROSS.

which they produced a sort of champlevé enamel by the insertion of plaques of coloured glass into the metal, but also lithic ornamentation by means of incised lines filled in with a black composition. This is abundantly shown by the memorials found at Glendalough and Clonmacnoise in Ire-



FIG. 13.—RHEIMS, ST. REMI PAVEMENT.

land, and in the Saxon cemetery of Hartlepool. Of these we give two examples: an Irish one with a cross and an inscription in Erse of the date of 822 from Clonmacnoise (fig. 11), and a Saxon one of about the same or slightly

subsequent date, to the memory of one of St. Hilda's Convent named Hildithryth (fig. 12). We do not, however, appear to possess any connecting link between these ancient examples and the earliest inlaid pavements in the North of France; but this may be due to the intrusion of gravestones over the area of the church floors. The earliest known surviving example is in the pavement of St. Menoux, by Moulins, which seems to antedate the first appearance of inlay in the Rhone Valley, and, like those, is formed with dark cements. The later and much richer examples, such as those of St. Denis, often had the cements of various tints, red, green, and black, heightened with spots of gilt glass mosaic; while the pavement now in St. Remi, Rheims, of one square of which we give an illustration (fig. 13), had the incised lines filled in with lead. The pavement in the sanctuary of Canterbury Cathedral, portions of which are in mastic inlay, was no doubt inspired by French examples.

We may mention that the subject of these inlaid pavements was dealt with at some length by the late William Burges in an illustrated article which appeared in the columns of the *Builder* in 1855.

BIRMINGHAM AND BUILDING-BY-LAWS.

At a meeting of the Birmingham City Council on Tuesday Sir James Smith made a rather important pronouncement in regard to the construction of roofs. He remarked that the Council had never had by-laws with regard to the strength of roofs, whether they were built of wood or steel. The Public Works Committee had recently approached the Local Government Board on the subject, and they felt no difficulty would arise in obtaining the consent of the Board to by-laws which would be prepared and submitted to the Council. The committee intended to have a conference with the builders and architects of Birmingham on the subject, so that by-laws would be prepared which were reasonable in the public interest. They did not want to prevent the erection of cheap houses, but it was necessary they should see that the buildings were safe.

Mr. Holland William Hobbiss, A.R.I.B.A., the Honorary Secretary of the Birmingham Architectural Association, in an interview with a representative of *The Architect* on the subject, remarked: "I can tell you this—that the architects will welcome any strengthening of the by-laws with reference to the construction of any part of a building. Of course, it would not only apply to the roofs, but to floors and that sort of thing, and the Architectural Association took the matter up just after the collapse of a roof in a picture house in Small Heath. Our only hope is that the City Council will not move definitely until, as promised, they have consulted with us. They are rather inclined to define what should be done in the early stages, and then submit their final proposals to the architects and builders. It would be far better to bring in the architects at the beginning rather than the end—the architects especially, not so much the builders, because they don't deal with the actual construction of the works. Those are not only my views, but the views of the whole Association."

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

PRESENTATION TO MR. CHARLES BATEMAN.

THERE was a large and representative gathering at the opening of the fortieth session of the Birmingham Architectural Association, which took the form of a smoking concert, at the Imperial Hotel, Birmingham, on Friday evening. The event was rendered the more interesting by a presentation to the Past-President, Mr. Charles E. Bateman, who has occupied the position of President on no less than four occasions, and who is greatly esteemed in the professional and business life of the city. The presentation consisted of a portrait of Mr. Bateman, and the gift had been widely subscribed to by members, and was painted by Mr. Wainwright, a well-known local artist. In the background the artist had cleverly introduced in reduced and shadowy form the portraits of Mr. Bateman's father and grandfather. The presentation was made by Mr. G. Salway Nicol, the President.

At the outset Mr. Holland W. Hobbiss, the honorary secretary, announced several letters of apology, and caused much amusement by reading a telegram from one prominent member, who wired: "I have married a wife and therefore I cannot come."

The President remarked that it had fallen to his lot to have the privilege of inaugurating the session, and at the opening of his year of office he naturally looked down the list of his predecessors. On that list there were many eminent names connected with the practice of the profession in Birmingham. The name of Bateman occurred many times, and curiously enough it was to a Bateman that all Presidents had looked for advice and counsel in their year of office. The list of their Past-Presidents was headed by Mr. J. J. Bateman (Mr. Charles Bateman's father), who occupied the chair from 1874 to 1876, and again in 1882 to 1884. Mr. Charles Bateman held the position from 1897 to 1899, and from 1911 to 1913, and it was a curious fact that no other name except that of Bateman recurred a second time in the list of Past-Presidents. Nominally, theirs was a democratic body, but at the same time nearly all such societies had at the back of them a personality whose interest and enthusiasm set the traditions for the whole society. The man at the back of their Association was Mr. Bateman. Throughout their chequered career they found that after periods of depression and somnolence the Society periodically woke up again through some new burst of enthusiasm, and it was due to Mr. Bateman that such re-awakenings had taken place. He had been at the back of nearly all the finest features of the Society's life, and had impressed it with the idea of camaraderie and social work which had distinguished it. The Society, whose initials were B.A.A., might well be termed and undoubtedly stood for Bateman's Architectural Association. The mere accident that they happened to be in a place like Birmingham meant nothing. Proceeding, Mr. Nicol remarked that whatever criticism might be levelled at British architecture, it was undoubtedly the fact that in the field of domestic work England was foremost among all the countries of the world. He would go on from that to say without the slightest hesitation that the work of Mr. Bateman in that respect was second to none in the country. That seemed an extravagant thing to say, but he could assure them that at any rate it was the opinion of the younger members of the Association. Mr. Nicol then formally presented the portrait, and remarked that it was a token of their thanks to Mr. Bateman for his services to the Association, and an expression of their affectionate regard for him as a man and as a British architect who had always held high the art of beautiful building in a difficult age.

The health of Mr. Bateman was then most enthusiastically pledged.

Mr. Bateman, in acknowledgment, remarked that he was at a loss to know why he should have been singled out for the great honour, looking at the names of those who had sacrificed so much more for the cause of architecture and the good of the Association. He should like to say that he did not think they could have made a better choice of a President. Mr. Nicol was always ready for what came along. His father had given him the best education any boy could have, and had sent him to a London office and abroad, and made him win prizes whether he wanted to or not. He (Mr. Bateman) was glad to think there was a personal touch in the presentation, but he felt it was really more than that in that it was a concrete expression that the Association was still alive, and that it was the determination of the architects of Birmingham to prove that they meant the Birmingham School to be second to none in the country. He would like to see the day when all of them would be so proficient and able with their work that the idea of any building work being done without an architect would be recognised and accounted as foolishness. Before they could make the slightest demand on the public that they should do the work, they had to show them that they were proficient, and he believed the Society was a means of enabling any architect to become proficient in his work and able to carry it out. He was delighted with the portrait, but he felt that at "the end of things" the picture had got to be their property, and if there was no Association in those days he should like it to go into the Art Gallery. Whatever quality or interest there might be in his work, proceeded Mr. Bateman, he owed it in a great measure to those who helped him in his office. He felt rather like the late lamented Thompson Plevens, who, when told he had changed his style, replied, "Changed my assistants, you mean!" Somehow or other he felt there was something magical in the fellowship of architects, and that it was far greater than the fellowship of masons. Might the fellowship of the Spirit be with them and amongst them, so

that they might build round and upon what is and what should be their chief corner-stone—the love and commands of the Great Architect of the universe.

The concert followed and proved most enjoyable.

It should be added that there was a fine exhibition of drawings, which were inspected with great interest. Among these were drawings by Sir Aston Webb, Mr. W. A. Pite, Mr. Arthur T. Bolton, and Mr. Gilbert Scott. Many of the local architects also exhibited some excellent work.

ENGLISH NEO-CLASSIC ARCHITECTS.

A COURSE of ten lectures at London University, arranged by the Carpenters' Company, was commenced by Mr. A. E. Richardson, F.R.I.B.A., on the 17th inst. Mr. Richardson will deal with "The Work of the English Architects of the Eighteenth Century and of the Neo-Classic School of the Nineteenth Century."

The lecturer has broadly divided the course as follows:—

1. Introductory. The foundation of Neo-Classic architecture in England.
2. The life and work of Sir Christopher Wren.
3. The Roman Palladian School. (Early period.)
4. The Roman Palladian School. (Matured period.)
5. The Graeco-Roman extension of the established style.
6. The archæological tendencies and limitations of the Greek School.
7. The eclectic Neo-Grec development.
8. The Italian Reaction.
9. Historical sketch, demonstrating the continuity of the Neo-Classic tradition.
10. The influence of the tradition on modern problems of design.

LECTURE I.

In his opening lecture Mr. Richardson dealt with the foundation of Neo-Classic architecture at the beginning of the seventeenth century, marking the birth of a formal Classic tradition as well as a departure from the loose interpretation of Italian Renaissance models, hitherto the vogue.

The adventurous Elizabethan age, he said, witnessed the journeyings of men of learning to the flourishing universities of Bologna and Padua. Details of Italian Renaissance architecture had been transplanted to England by devious routes, to be misinterpreted by native craftsmen. Italian books were translated into English, and the once sound vernacular building tradition was diverted into the tortuous channels of what is now conveniently designated as Jacobean. The first decade of the seventeenth century, however, brought in its train a change so remarkable as to appear at first glance almost incredible. The haphazard application of Classic detail to house fronts and internal decoration was, by the genius of one architect, changed to an architectural system of academic rank. Palaces and mansions were built coequal to the masterpieces of Italy, the land which inspired their creation. The accession of the art-loving Stuarts to the throne materially aided the movement in favour of transplanting the Classics to England. But the man who at this period stood indisputably at the head of English art collectors was Thomas Howard, Earl of Arundel and Surrey. Before 1612 he had made a comparatively lengthy journey to Italy, returning home at the end of that year. During his second visit of 1613-14 he had in his entourage no less a person than the celebrated Inigo Jones, whose taste was finally developed in the direction of pure Classic architecture. In 1628 Charles I.'s ambitions turned to the shores of Greece, rumours of the treasures of which had by this time reached England; and the King's Admiral, Sir Kenelm Digby, sailed to the Archipelago to ship antique statuary for the Royal Collection. Previous to this the Banqueting Hall had been erected at Whitehall and the grandiose extension of the Palace projected. The zeal of the King and the artistic coterie of cultured nobles who formed the Court received an abrupt check by the outbreak of the Civil War. During the Commonwealth the Arts slept, though the genius of John Webb kept breath in the tradition.

With the Restoration there concurred a rejuvenation of the Arts, one which had but little in common with the early fruitful years of the century, but which was to be adorned by the advent of a circle of men of genius. Sir Christopher Wren was to leap into prominence as the greatest of English architects. Lely and Kneller continued the tradition of Vandyke. The Great Fire of London was to be but an episode. Yet this period, apart from the convenient arrange-

ment of divisions of dates, in reality heralds the glorious eighteenth century, the spirit of which extends over a greater number of years than is commonly supposed.

Mr. Richardson then devoted the remainder of his lecture to a consideration of the life and work of Inigo Jones.

Born in 1573, Inigo Jones paid his first visit to Italy towards the close of the sixteenth century. He returned in 1604 with a great reputation as a traveller, but very little as an architect. Between 1604 and 1612 he was constantly employed designing scenery for the Court masques, many of his designs being preserved in the Burlington Collection of the R.I.B.A. During his second Italian visit in 1613 he devoted himself to a thorough study of Classical architecture. He became inspired undoubtedly by the refined work of the great Italian master Baldassare Peruzzi, work showing Greek influence at a time when even in Italy its beauty was little understood. The benefit is to be seen in the delicacy of the ornament of the Banqueting Hall. In 1615 he became Surveyor-General of the Works. Four years later he was ordered to design the new Banqueting House in Whitehall. Considering the influences then at work, it appears the more remarkable to contrast the refined beauty and composition of this building with such works as Burghley Hall or Hatfield House. On the one hand is seen a picturesqueness of outline, and on the other an enlarged intellectual grasp of real architectural values. In the masterly plan for the complete scheme of the Palace of Whitehall is revealed a complete vindication of the return to Classic models; there is apparent the influence of the great scale of the Roman *thermæ* and other Classic buildings which the architect had carefully studied. Had it been carried to completion, English architecture would have been elevated to a much higher place than it occupies at the present time.

Mr. Richardson then alluded to such further examples of Inigo Jones's work as the Water Gate at York Stairs; St. Paul's, Covent Garden; the south side of Wilton House; and Raynham Hall, Norfolk. Coleshill House in Berkshire, built in 1650, is, he said, a very late example of his manner; its design shows the increasing mastery he obtained in dealing with problems of architectural composition.

Inigo Jones died on June 21, 1652. He was not only the forerunner of the Classic school of English architects, but he must be considered as one of the most accomplished of them all. The period of his influence was ripe for the adventure into the realms of Classic. He became the interpreter for the wealthy patrons who desired their magnificence expressed, and at one blow crystallised a fleeting tradition into a definite style. It would be a mistake to say he completely mastered all the intricacies of the stupendous art of architecture; no solitary individual can ever do that; but he raised the standard of the monumental in building for all time.

Considering the vast amount of building undertaken by Inigo Jones, there can be but little doubt that he employed a staff of draughtsmen to interpret his ideas. John Webb, however, is the only name known in this connection. The ensuing period of the Commonwealth was singularly devoid either of architecture or architects. In the slender connection between the architecture of Jones and Wren the work of Webb, Gerbier, and Talman forms a link. Webb was content to work in the monumental manner and followed the theories expounded by Jones; he was conscientious and showed restraint in all his designs.

LECTURE II.

THE DAWN OF THE EIGHTEENTH CENTURY.

With the Restoration the modern spirit, in the fullest meaning of the term, comes into being. Its definition implies the spirit of research, the desire for exactitude, a minute acquaintance with detail, and the right understanding of character. In relation to architecture, it not only means the inception of the spirit of constructive criticism, but marks the positive temper which extended the stream of Classic development already in being. For the first time since its inception in England the Neo-Classic becomes distinctive as a national style, understood and appreciated by all classes of society.

Sir Christopher Wren by his gigantic labours enriches four reigns. Evelyn, well qualified by his two foreign tours, acts as artistic mentor to kings, nobles, and architects; while Pepys, resourceful secretary, admiringly struts the courtly stage. Both literature and the drama were advanced almost on parallel lines to architecture.

Events in the field of research were developing apace,

and Englishmen were again casting eyes on the monuments and sculpture of old Greece. In 1675 and 1676 a Mr. Wheeler, in company with a learned antiquary of Lyons, named Spon, travelled through Greece and the Levant. This journey was the first antiquarian expedition undertaken in Greece of which a record has been kept. Towards the close of this century the number greatly increased of those who visited the south for the sake of Art and brought home some memento or other of their travels.

To understand the phase of Neo-Classic architecture marked by the school of Wren, 1660-1720, it is, Mr. Richardson pointed out, of importance to remember that in England at this period the social status it enjoyed was far higher than that held by the architecture of to-day. The splendid Court of Louis XIV. had gathered to it all that was best in the Art circles of Europe. Works were undertaken on a scale approaching Roman grandeur, and for the ensuing half-century French architecture acted as a magic touchstone to the Arts of Europe. Notwithstanding the desire of the restored English Court to bring about a drastic change towards French taste, the even tenor of Palladio's doctrines were unswervingly followed. For a time English architecture showed a sympathetic tendency towards French ornamentation, but this was fortunately short-lived; the national reticence encouraged artists to turn once more for inspiration to Italian models, and from thence to the ancient monuments of Rome.

Through the continued and brilliant achievements of Sir Christopher Wren not only was the continuity of the tradition assured, but it gradually developed an additional academic interest which, apart from the number and character of the buildings erected, forms even to-day the most prominent landmark in the Neo-Classic movement. Wren was brought face to face with immense problems, almost without training, at the outset of his career. He had to grip all the requirements of a building and to work in a style which should be sustained, capable of sustained and noble dignity. His repeated successes in this difficult task gradually led him to appreciate the law of restraint, and in the full maturity of his later work is seen evidence of an accomplished manner and detail akin to the work of Inigo Jones.

An analysis of the Wren style proves that in the mind of the architect regard for scientific composition guided his every action, a reflex of a trained and ordered reasoning power. Each of the component masses of his buildings is well chosen, directly and soundly, almost with unerring instinct for proportion in every case. There is, however, a sense that something subtle is lacking perhaps in the quality of the detail, possibly in the application and selection of the ornament, but mainly attributable to the startling thoroughness of purpose, which placed mass before other considerations. He considered that the perspective representation of a design should outweigh consideration of plan and elevation. Wren accomplished what Inigo Jones had only dreamed; he elevated English architecture to a platform it had never reached before; he dealt with plain facts and reduced them to terms of architecture which all men could read. No architect, however, has ever succeeded in escaping from the fashions of his time, and, in common with the lesser men of the period, Wren's work reflects immaturities of taste which at the time passed unnoticed. He worked during years when pedantry was almost unknown; that he used the forms of Classic architecture as a vehicle of expression was merely an incident; he viewed architecture with the eye of the scientist, who from the outset creates in embryonic form that which he afterwards essays to construct.

Christopher Wren was born at East Knowle in Wiltshire in 1632, and died in St. James's in 1723, having laboured for sixty years in the cause of architecture. When nearly thirty he was appointed assistant to Sir John Denham; probably he learnt more from John Webb, at that time associated with Denham, than from the Surveyor-General of the Royal Works. He was a keen student of Vitruvius, and followed the principles of the Orders according to Palladio. In 1663 he entered upon his first commission, Pembroke Chapel at Cambridge, for his uncle, Mathew Wren. In the same year he began the Sheldonian Theatre at Oxford, famous for the construction of the roof, but not very convincing as a piece of design. In 1665 he designed the Inner Court of Trinity College, Cambridge. He then visited France, but unfortunately went no further. He spent six months studying the architecture of Paris and the country round, noting the great school then flourishing in Paris, at

that time the finest in Europe, formed as it was by the congregation of designers and craftsmen brought together to fulfil these great works.

He returned to England with "all France on paper," full of impressions of the style Louis XIV., and eager to put his genius to the trial. After the Great Fire the services of Wren were constantly in demand.

Mr. Richardson devoted the remainder of his lecture to considering the works of Wren.

CHURCH PLATE.*

By CHRISTOPHER A. MARKHAM, F.S.A.

INASMUCH as architects who receive commissions to erect new churches are sometimes asked to design the new cups, patens, and flagons for use in such churches, it cannot be said that the knowledge of the forms of such articles is superfluous for an ecclesiastical architect.

Vessels used for the administration of the Holy Communion naturally date back to the institution of that sacred rite by Our Lord; and no doubt such vessels were originally the common domestic utensils in everyday use in the Holy Land. But, as years went by, it is probable that the cup used as a chalice and the plate as a paten were set apart and reserved for such special use. Therefore, as might be expected, we have to wait many centuries after Christ before there is any written record relating to the material or form of chalices or patens; nor are there any remains of such vessels of early date.

Mr. W. H. St. John Hope says that "There appears to have been no special form of chalice during the first ten centuries of the Christian era. A common type was a classical cup with one or two handles, or more, and a round bowl and foot. The cup without handles had usually a more or less developed knob between bowl and foot by which to hold it—the stem of later days being represented by bands at the junctions. When the cup was withdrawn from the laity in the twelfth century the handles ceased to be of use, and were no longer made."

No doubt at one time Communion vessels were made of every conceivable material; but, as the late Mr. Cripps says, "In process of time objections were found to these; wood was porous, and liable to absorb a portion of the sacred element placed within; horn was an animal substance and so formed by blood; glass, crystal, and precious stones were all brittle and liable to fracture; and at length the precious metals alone were allowed to be employed."

The first distinct reference to Communion vessels was made at the Council held at Rheims in 847, when it was decreed that chalices should be made wholly of silver, unless gold should be available; tin was allowed in cases of great poverty, but no other material might be employed. The next reference was in 1206, when Stephen Langton prescribed the use of silver for chalices.

In the twelfth century it appears from inventories and bequests in wills that chalices were of a certain well-known form; but it is not easy to gather particulars of such form. It is, however, certain that, in the cathedrals at any rate, the chalices were magnificent, being of pure gold with many precious stones.

Coming to the thirteenth century, we reach a period when the form of the chalice and paten first becomes certainly known, and from this time we can follow the change in the fashion of these holy vessels. We can trace the shape of the chalice from its first plain outline to its complicated and very beautiful form at the end of the fifteenth and beginning of the sixteenth centuries. We must then follow the drastic changes made by the Reformation, and later on by the Puritan spirit, and so on to the present time, when there is no style in such matters, but only an imitation of either the Pre- or Post-Reformation forms.

Indeed, we can note all this in exactly the same way in which we follow the development of the styles of architecture. Its massive piers, heavy round arches, and plain windows of the thirteenth century; its taller and slighter piers, pointed arches, and grouped lancet windows of the fourteenth century; its more elegant forms, elaborate mouldings, and lovely window tracery of the fifteenth century; its perpendicular lines, panelled walls, ornate roofs, and four-centred arches of the sixteenth century; its revival of the Classic forms in the Renaissance architecture of the sixteenth and seventeenth centuries; its debased forms and church

windows of the eighteenth century; and its iron erections of the present day.

The number of pre-Reformation chalices and patens still remaining in England is now pretty accurately known, and they have been carefully classified by Messrs. W. H. St. John Hope and T. M. Fallow. Further research through the various sets of Communion plate in the country, which has not yet been catalogued, may bring to light other Mediæval vessels, but it is not probable that any new types may be discovered.

In this paper it is proposed to follow the classification which cannot be improved.

Taking, first, the chalice as the more important of the two vessels, we ought first to consider the three parts of a Mediæval chalice:—

First, there is a small bowl for the wine.

Secondly, a stem to connect the bowl and foot, with a knot in the centre, by which the vessel was held.

Thirdly, the foot on which it stood.

Each of these parts changed its shape as time went by, the plain simple form developing into the beautiful and elaborate chalices used immediately before the Reformation.

And, first, I should like to say a word about coffin chalices; the oldest chalices now in existence are those which were found in the graves of ecclesiastics. The treatment of this subject would form a paper for itself, and, therefore, can here be but lightly touched on. It appears that during the twelfth and subsequent centuries it was the general custom to bury with an ecclesiastic, as a symbol of his calling, a small chalice and paten. For bishops and the higher dignitaries of the Church these vessels were made of silver, while for the parish priest tin or pewter was used. All these coffin chalices are of the very earliest shape, with round feet. I may describe one set which was found in Northamptonshire in a grave in the north aisle of Nassington Church. In this grave, with the skeleton of a man, there were three escallops or palmer's shells, each pierced with two holes for hanging on the dress. These shells were the privileged sign used by persons returning from the Holy Land. This little chalice and paten are of pewter; the chalice has a shallow bell-shaped bowl with slight lip; the stem is slender and cylindrical, with knot in the centre; and the foot, which has been much damaged, was circular. The paten has a single circular depression, with rather broad edge. These are of the earliest type, and may be assigned to the middle of the thirteenth century.

Returning to Mr. St. John Hope's classification of chalices, we find that there are four types with round feet, known as A, B, C, and D; and the same number with polygonal feet, known as E, F, G, and H; and these I propose to mention in their proper order.

Taking first Type A, which was in use *circa* 1200 to *circa* 1250, and of which there are only three principal examples remaining. Of these the most important is the chalice which was until recently in the church at Berwick St. James, Wilts, and is now in the British Museum. This is of the early part of the thirteenth century. It is parcel gilt, and quite small, its height being only 5½ inches, and the width of bowl and foot 4½ inches. The bowl is broad and shallow, with slight lip, as in all early chalices, a cylindrical stem with circular knot in the centre and broad spreading circular foot, the whole being perfectly plain.

Type B, *circa* 1250 to *circa* 1275, has a broad and shallow bowl, the stem and knot being worked separately from the bowl and foot, and either the stem or the knot, or both, being polygonal, the foot being plain and circular. Examples of this type occur at York, Lincoln, and Exeter.

Type C, *circa* 1275 to *circa* 1300, still has a broad and shallow bowl, the stem and knot being as in the previous type, and the foot being still circular, but with its spread worked into ornate lobes which radiate from the stem, over the surface of the foot. Chalices of this type exist at York, Salisbury, and Chichester.

Type D, *circa* 1300 to *circa* 1350. Chalices of this type have a deeper and more conical bowl than those of earlier date, but the other parts are as before described. There appears to be only one specimen of this type, which was found in the supposed grave of William of Melton, at York, who was Archbishop from 1317 to 1340. On the foot of this chalice is engraved a crucifix, which is the earliest example of such an addition.

This brings us to the middle of the fourteenth century, and the drastic change from the round foot to that of polygonal shape. The change was no doubt introduced because at this period a custom obtained in Western Europe of laying the chalice on the paten to drain after the celebration of

* A Paper read on October 16 before the Society of Architects.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.

HOUSE AT GRUNEWALD, BERLIN.—STREET FRONT.—HERT RUDOLF ZAHN, Architect.
From *Berliner Architekturwelt*,

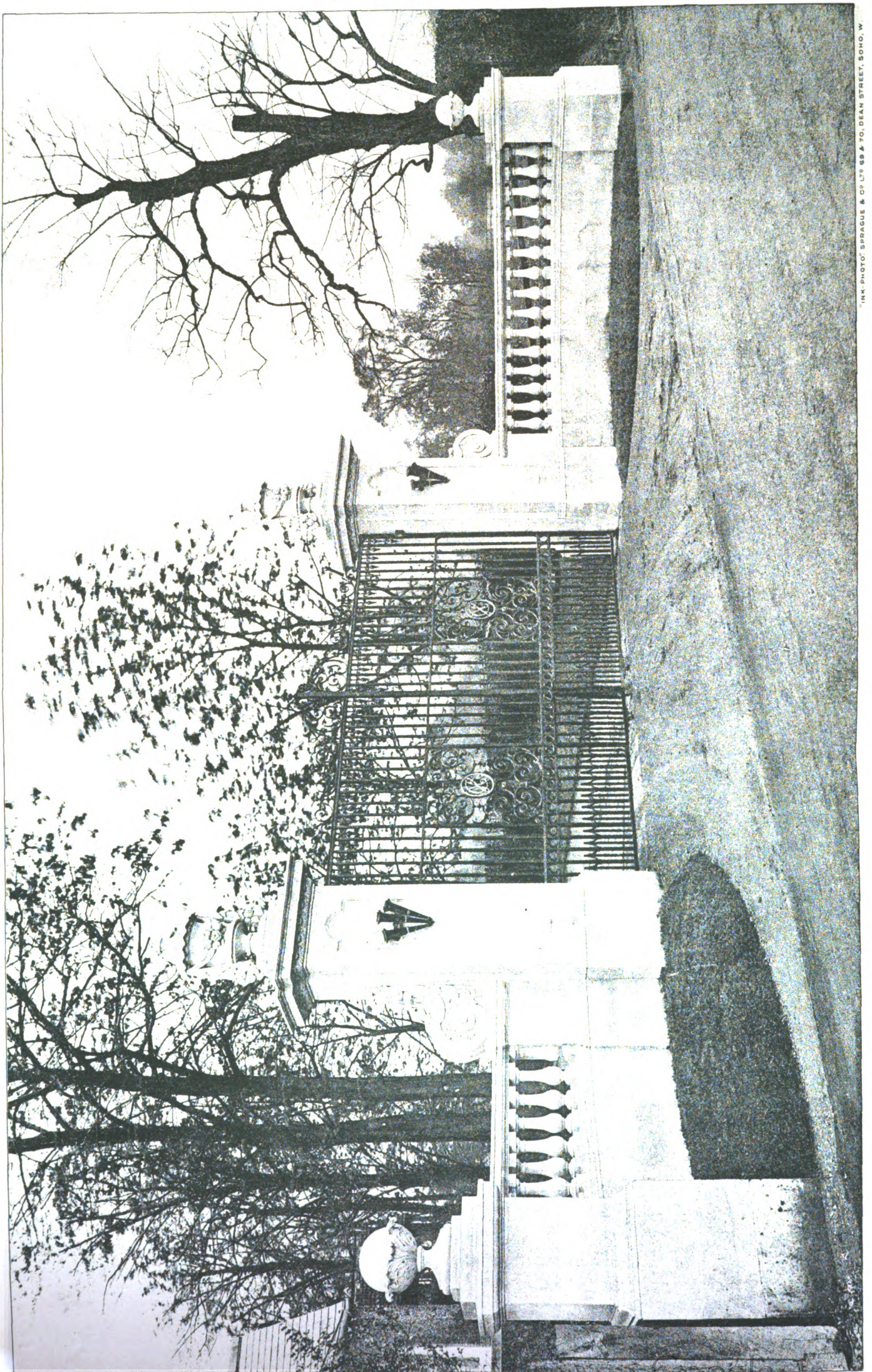
the High Mass. Now a chalice of the round-footed type would be very liable to roll when laid on its side, and, therefore, the foot was made with points, so as to prevent such tendency to roll. The hexagon was at the same time chosen because its points are further apart than any other practicable shape. Another result of this custom of draining the chalice was that the bowl was made conical in shape, so as to allow of its being more easily drained when laid on its side.

Type E, *circa* 1350 to *circa* 1450, is the earliest with a polygonal foot. The bowl is deep and conical, as in the previous type; the stem and knot are uncertain in shape; the foot, however, is always of six points or lobes. The earliest chalice of this type is at Hamstall Ridware, in Staffordshire, the date of which is about 1350. The bowl of this is deep and conical; the stem and knot are circular, the latter being

formed of sections twisted spirally. The foot is formed of six points, with a beaded pattern running round the lower edge.

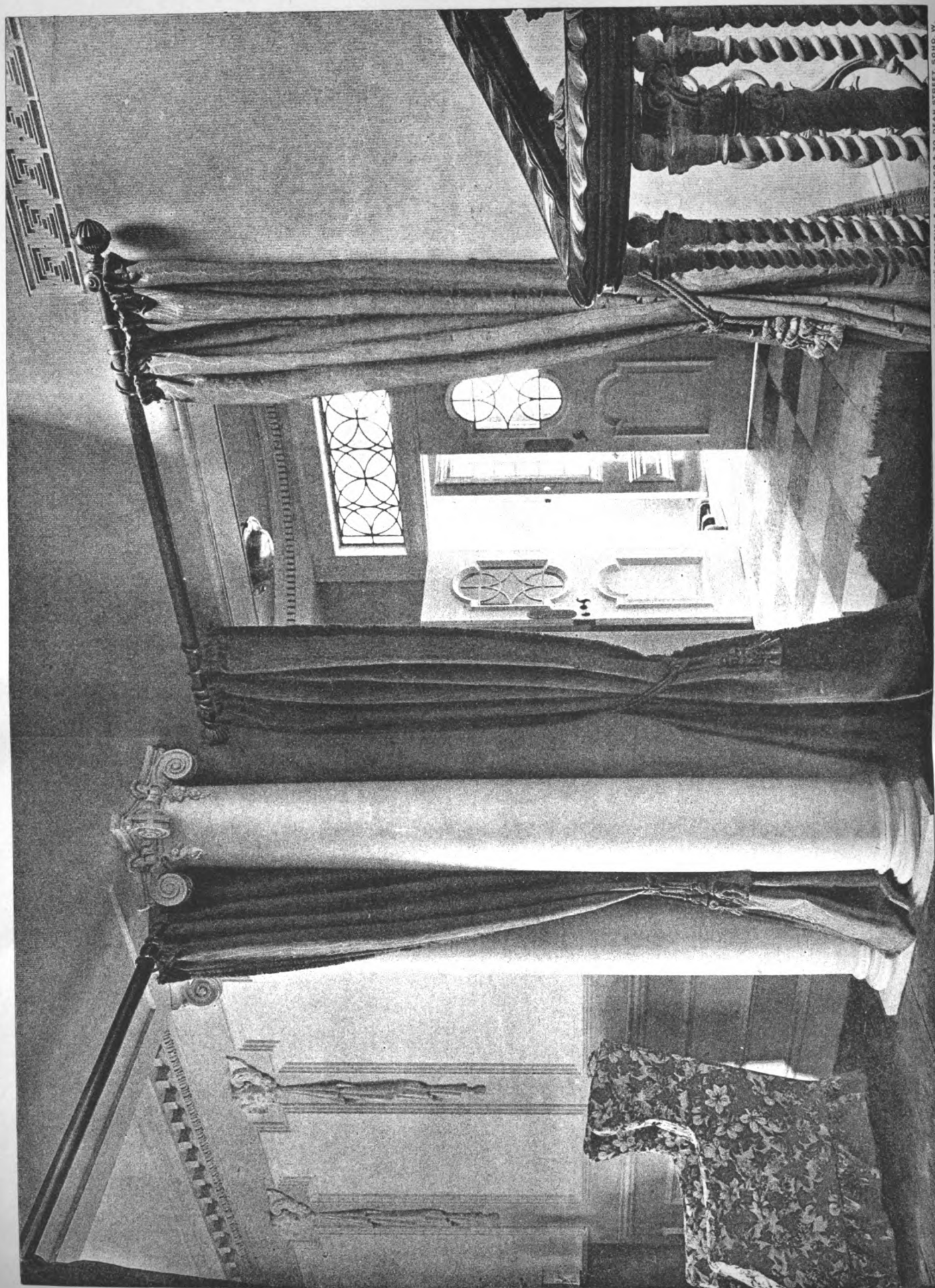
Another example at Goathland, in Yorkshire, is about a hundred years later than that previously mentioned; it has an hexagonal stem with plain knot, having the same number of sides, and on one compartment of the hexagonal foot is engraved the I H C.

Type F, *circa* 1450 to *circa* 1510. The chalices of this period have the bowl deeper, more conical, and usually quite plain, though sometimes with a text round the edge. The stem has six sides, and is longer than in previous examples, and is sometimes covered with tracery having buttresses at the angles. The knot is more ornate, and usually beautifully worked, with angels' heads, flowers, or other designs, and indeed it reminds one of a boss on



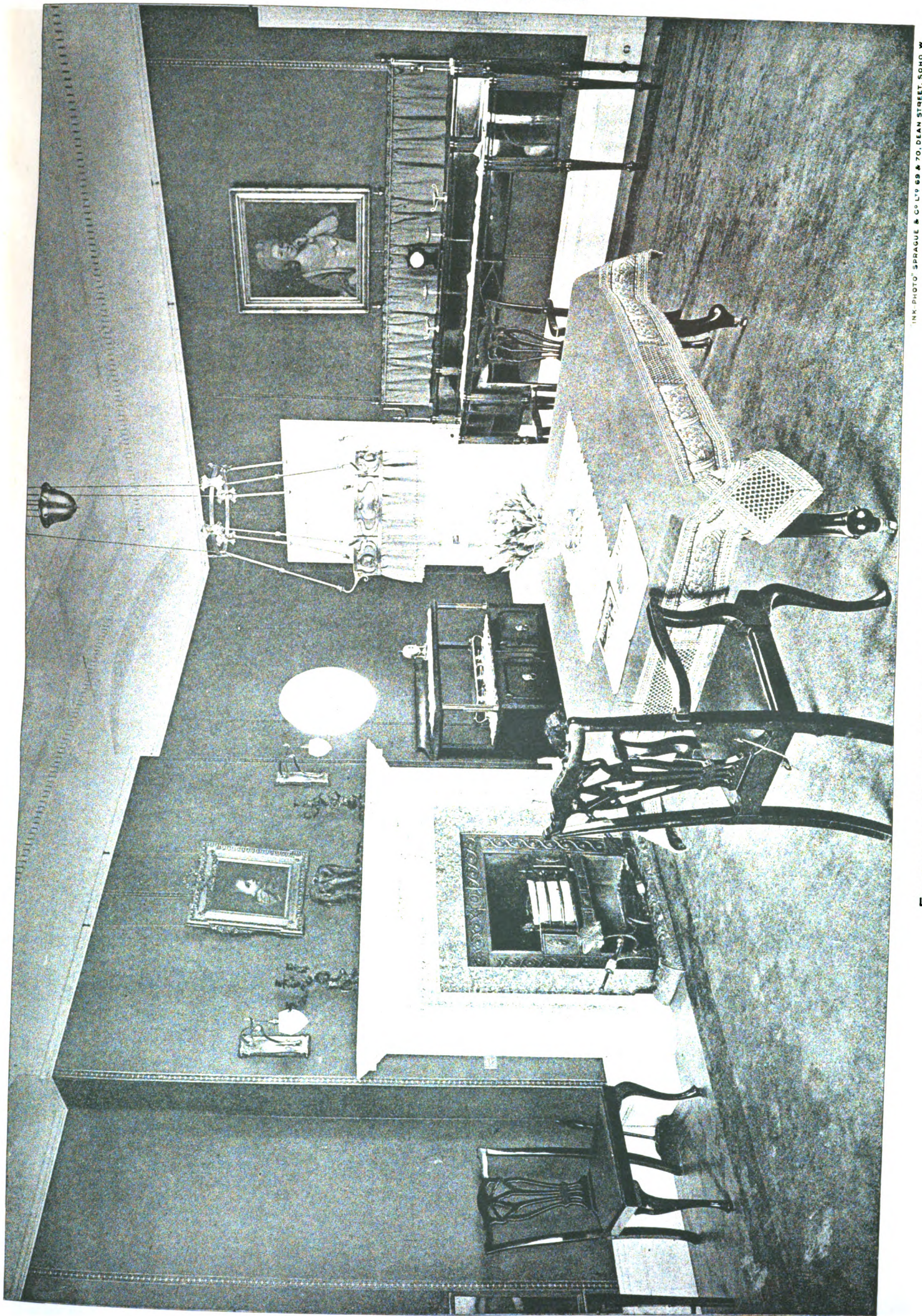
"INK PHOTO" SPRAGUE & CO. LTD. 68 & 70, DEAN STREET, SOHO, W.

ELLESBORO' HOUSE, ROEHAMPTON LANE. ENTRANCE
MR. P. ESTCOURT HOLLAND, A.R.B.A., ARCHITECT



"INK-PHOTO," SPRAGUE & CO. 129 69 & 70, DEAN STREET, SOHO, W.

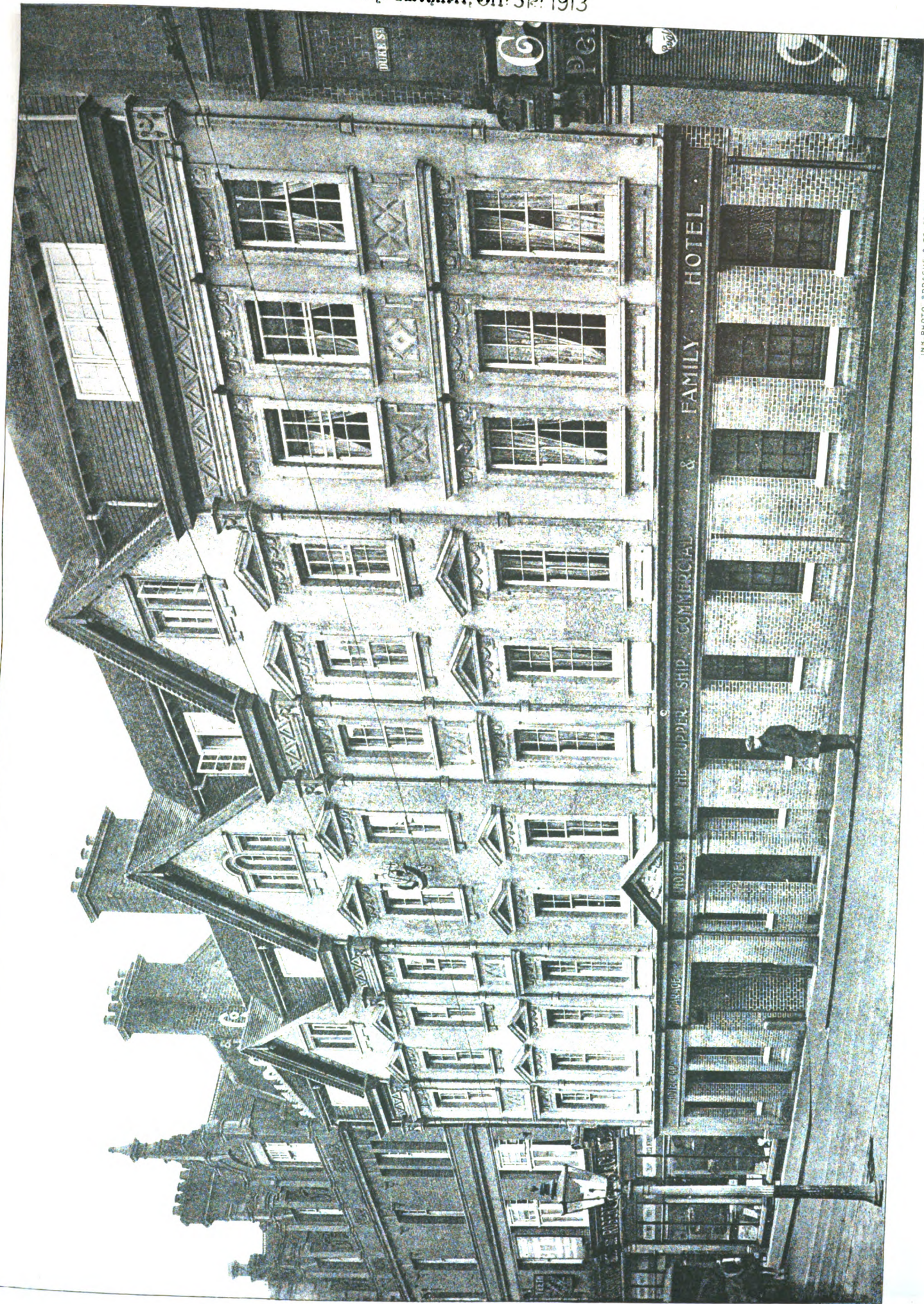
ELLESBORO' HOUSE, ROEHAMPTON LANE. VESTIBULE.
MR. P. ESTCOURT HOLLAND, A.R.I.B.A., ARCHITECT



ELLESBORO' HOUSE. ROEHAMPTON LANE. DINING ROOM.

Mr. P. ESTCOURT HOLLAND, A.R.I.B.A., Architect

INK PHOTO SPRAGUE & CO. L^Y 69 & 70, DEAN STREET, SOHO, W.



THE "UPPER SHIP" HOTEL, READING
Messrs. WEBB & SUTTON, Architects.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.



W. EAT. E. LOVES.
July. 1913

CHIPPING CAMDEN
GLOS. The Church Tower

WEST
DOOR

Art. 31st 1913

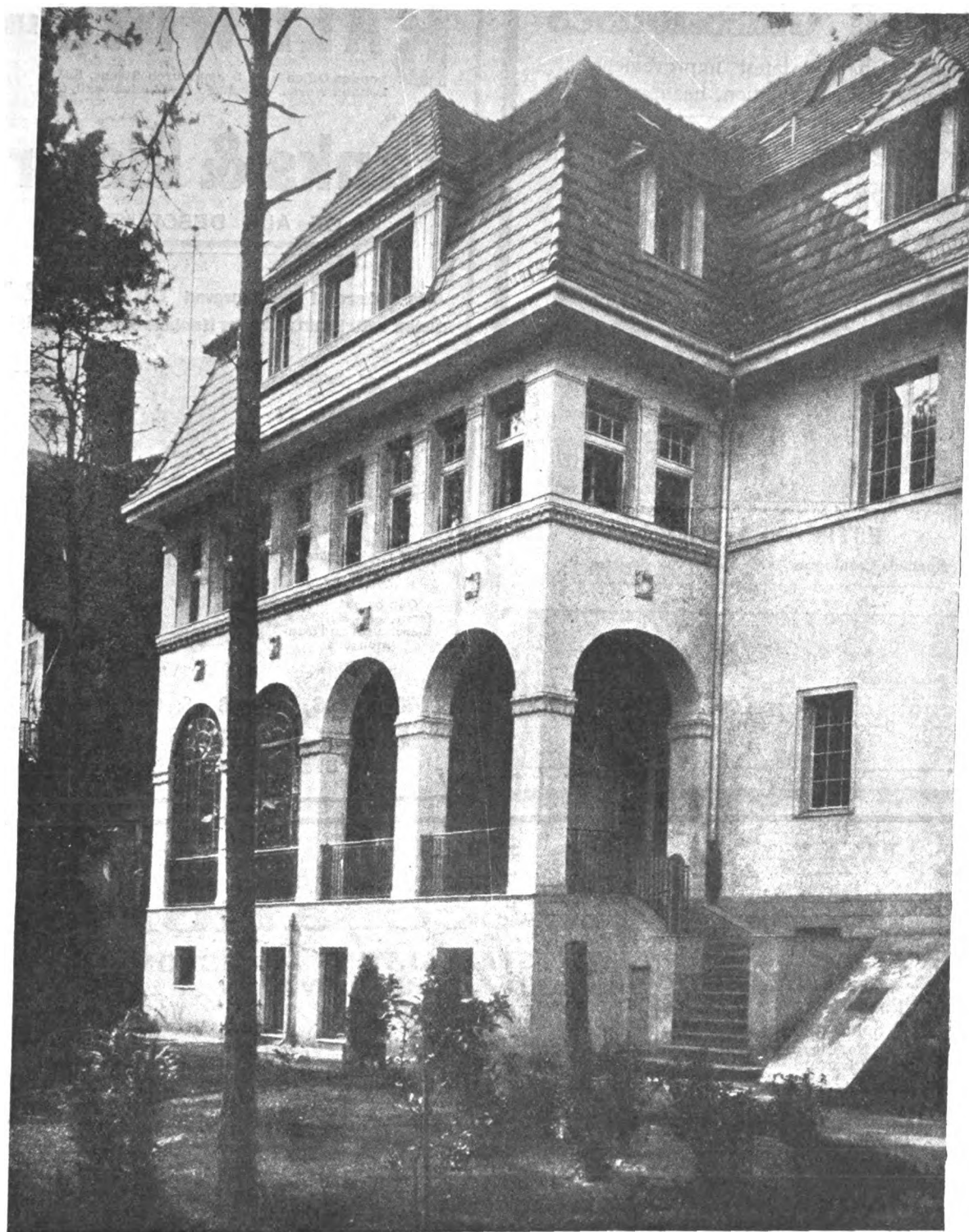


ALBERT E. LOWES
JULY 1913

THE BELL TOWER
EVESHAM

PHOTO-LITHO. SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, BOSTON, W.

Digitized by Google

MODERN EUROPEAN ARCHITECTURE.
GERMANY.[From *Berliner Architekturwelt*.

HOUSE AT GRUNEWALD, BERLIN.—GARDEN FRONT.—Herr RUDOLF ZAHN Architect.

the ceiling of a building in the Decorated style. The foot is usually plain and flatter than before, and the points are sometimes worked into trefoil knots, and a crucifix is usually found in one of the compartments. There are at least a dozen chalices of this type still remaining.

Type G, *circa 1510 to circa 1525*. The chalices of this date have further developed, but hardly for the better. The bowl is somewhat shallower and more square at the base; the stem and knot are as before; the foot, however, is quite different, as the points have become large lobes, thus making it sexfoil in plan, with a vertical edge. There are three of these chalices, the earliest and best being Bishop Foxe's gold chalice at Corpus Christi College, Oxford.

Type H, *circa 1525 to circa 1540*. This is the last distinct variety before the Reformation, and four examples still : which are more architectural in character

than anything we have previously noticed. The bowl is broad and shallow, being more like the earlier hemispherical forms, and it generally has a legend or text round the edge. The stem is more ornate, and strengthened at the angles by buttresses on cable moulding. The knot is wider and flatter than in the preceding type. There is a kind of pierced parapet which connects the stem with the upper part of the foot, and this in its turn has a sort of buttress at each angle. The lower part of the foot is quite flat, and may be described as a wavy-sided hexagon, and there is generally a crucifix in one of the panels, and also a legend round the foot.

So much for the Pre-Reformation chalices, and now for the patens, which appear to be somewhat older, and of which a greater number remain, over eighty examples being known.

Patens again are divided by Mr. St. John Hope into

Modern Glasshouses

replete with the latest improvements
in construction, ventilation, heating, &c.

Architects' Designs carefully carried out.



ESTIMATES FREE.

Special Catalogue, with numerous designs,
on application.

MESSENGER & CO. LTD.

HORTICULTURAL BUILDERS & HEATING ENGINEERS
LOUGHBOROUGH LEICESTERSHIRE
London Office 122 VICTORIA ST. S.W.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

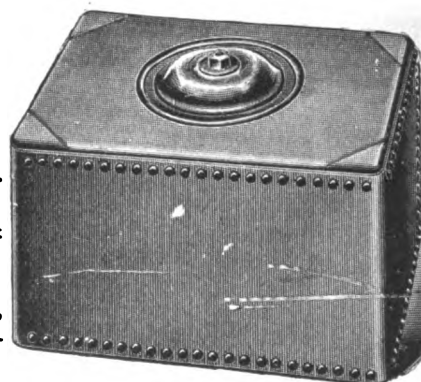
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



IRON KECS, DRUMS & CANS,
GALV. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.

THE WALL-PAPER MANUFACTURERS LTD. "Relief Decorations."

**ANAGLYPTA &
SALAMANDER**

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2781 Gerrard.

Telegrams {"Anaglypta, London."
"Anaglypta, Darwen."}

**LINCRUSTA-WALTON,
CAMÉOID & CORDELOVA**

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 8769 Gerrard.

Telegrams: "Lincrusta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above



SAVOY HOTEL GARAGE, BOURNEMOUTH
Fitted with 12 Kinnear Patent Steel Rolling Shutters
By Arthur L. Gibson & Co. Radnor Works, Twickenham

ARTHUR L. GIBSON & CO.

Radnor Works, Strawberry Vale,
TWICKENHAM.

Sole Manufacturers of

**Kinnear Patent
Steel Rolling Shutters**

FOR

**TRAMCAR DEPOTS,
GENERATING STATIONS,
BOILER HOUSES,
ENGINE SHEDS,
WAREHOUSES,
GARAGES,
And Entrances Generally.**

MANCHESTER:
33 Arcade Chambers.
St. Mary's Gate.

GLASGOW:
79 West Regent Street.

two main classes. First, those which have a circular depression, with an inner depression multifoil in outline, and which form the greater number. Secondly, those which have only one depression, which may be either circular or multifoil. Almost every paten has some design in the centre, those of the earlier date generally have the *Manus Dei*, or Hand of God in the Act of Blessing, while those of the later date have the *Vernicle*, or Face of Our Lord. Sometimes, however, the Holy Trinity, the Holy Lamb, the Sacred Monogram, or other symbol is found. These patens are divided into seven types as follows:—

Type A, circa 1180 to circa 1260. These patens have a circular depression, with an inner depressed quatrefoil, of which several examples remain; one has the *Manus Dei*, another the Holy Lamb, and a third the figure of a bishop.

Type B, circa 1260 to circa 1300. The patens of this period have a lower or single depression octofoil or multiple, and they generally bear the *Manus Dei*. The most remarkable example of this type is the paten still in use at Wyke Church, near Winchester, which is parcel gilt; the first depression is circular, the second octofoil, and the third again circular, with the symbol of the Holy Lamb roughly incised. Its date is about 1280.

Type C, circa 1300 to circa 1350, and later, has the upper depression circular and the lower sixfoil, with the *Manus Dei*, or the I H C in the centre.

Type D, circa 1430 to circa 1530, comprises some half of the existing patens, and is similar to the last named, except that the spandrels of the second depression are ornamented with a kind of rayed leaf. The central ornament is various, but the *Vernicle* is usually employed.

Type E, circa 1450 to circa 1510. The patens of this type have a single circular depression, and usually the sacred initials I H C or I H S are engraved in the centre.

Type F, circa 1525, resembles type D, with varying central device which, however, is surrounded by a glory of rays, and there is usually a legend round the edge.

Type G, circa 1520 to circa 1535, is an elaboration of type E. The patens of this period have a single circular depression, with a device surrounded by a glory of long rays, and the rim has an engraved legend.

No doubt in the cases of both chalices and patens, as in architecture, these types overlapped each other, and the dates given by Mr. St. John Hope are only approximate.

(To be concluded.)

MR. ARTHUR RACKHAM, R.W.S., AT THE LEICESTER GALLERIES, LONDON.

NURSERY tales, both in prose and rhyme, possess a perennial charm for young and less young, and this quality is intensified in these later years by the co-operation of worthy Art. In the days of our unregretted youth the portrayal of incidents in the course of the narrative was to a large extent far more infantile than the story itself, though (to be quite frank) the latter was none the less enjoyed, even if our youthful withers should by rights have been wrung by reason of indifferent illustration.

To-day, however, no such drawback to whole-hearted enjoyment exists, and Mr. Arthur Rackham is one of a band of artists who evince at one and the same time their powers and their sympathies in regard to child-lore and legend. It is not easy in the present small exhibition to select or to differentiate where, broadly speaking, all are so good. But we are justified in making this one criticism, viz., as to the exaggerated size of animals and of portions of the human frame frequently to be noted in Mr. Rackham's sketches; the plea that might be urged for remembrance of the supposed fairism of the subjects would not, we consider, be valid in many of the instances, but still we have no desire to over-emphasise this criticism. Mr. Rackham has worked in two distinct styles, the silhouette and the combined flat colouring with light ink lines; his colours are clean and dainty and his technique is equally dainty, whilst he has the gift of indicating childish prettiness most delightfully. A few of the exhibits are unconnected with nursery lore, such as "The Wind and the Waves," "Shades of Evening," and some Whitby and other sketches, wherein he shows his sense of rhythm, selection and colour quite as successfully as he exerts his artistic powers in his illustrations for "Mother Goose" and other child-lore.

MR. H. D. SEARLES-WOOD, F.R.I.B.A., has been elected Master of the Painters' Company.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CHESHIRE.

Chester.—Workmen's dwellings, Saltney, for the Town Council.

CORNWALL.

Praze.—Wesleyan Church: additions.

CUMBERLAND.

Carlisle.—Council School, Newtown. Mr. G. D. Oliver, F.R.I.B.A., architect, 68 Lowther Street.

DERBYSHIRE.

Codnor Park.—Conservative Club, for the Butterley Colliery Co.

DURHAM.

Seaham Harbour.—Banking premises, for the London Joint Stock Bank, Ltd. Messrs. Clark & Moscrop, F.R.I.B.A., architects, Feethams, Darlington.

ESSEX.

Chelmsford.—Council Schools for 1,000 places in Bradford Street and Rainsford Road.

Forest Gate.—St. James's Church.

GLOUCESTERSHIRE.

Bristol.—St. Peter's Hospital: additions and alterations. Mr. W. S. Skinner, F.R.I.B.A., architect, 27 Orchard Street.

Tewkesbury.—Twelve Council houses.

HAMPSHIRE.

Fareham.—Price's School: master's residence extension. Mr. W. Cobbett, architect, 89 West Street.

HUNTINGDONSHIRE.

St. Neots.—Upper Honeydon Farm: buildings. Mr. F. Smith, contractor (£683).

KENT.

Bromley.—Baptist Mission Hall: additions. Mr. P. Coad, architect, "Whyte Cot," wanstead Road. Two houses, Crown Lane. Mr. L. Evans, builder. No. 4 Great Elms Road, for Mr. S. O. Weatherill. No. 25c Simpson Road, for Mr. F. G. Crickett. No. 18 Widmore Road, for Messrs. Baxter, Payne & Lepper.

Workshop, Tylney Road, for Mr. F. G. Crickett.

Wye.—South Eastern Agricultural College: additions. Mr. A. E. Lacey, A.R.I.B.A., architect, 18 North Street, Ashford.

LANCASHIRE.

Bolton.—Rumworth Cotton Works: alterations, for Messrs. W. H. Brown & Son.

Picturedrome, Tonge Moor Road: alterations, for Mr. J. McVittie.

Congregational Sunday School, Derby Street: additions and alterations. Messrs. Ormerod & Pomeroy, R.I.B.A., architects, 21 Acresfield.

Bewshill Farm, Middle Hulton: shippin, stables, and loose boxes, for the Earl of Ellesmere.

Shop, Ashworth Lane, Astley Bridge, for Mr. G. Sykes.

Weaving shed (for 874 looms), Deane. Mr. T. E. Smith, architect, Central Chambers, Fold Street. Messrs. Dickinson, Ltd., contractors, Bark Street.

Darwen.—Conservative Club, Duchess Street (£1,000).

Mr. G. G. Sames, architect, 2 Knott Street.

Hest Bank.—Bradford Cinderella Club's holiday home for children (£1,000).

Manchester.—Masonic Hall, Deansgate (£30,000).

Todmorden.—Bleach Works: extensions. Mr. T. Mitchell, architect, Strand.

LEICESTERSHIRE.

Melton Mowbray.—Drill Hall, Asfordby Road, for the Territorials.

MONMOUTHSHIRE.

Risca.—Isolation Hospital. Mr. A. J. Dardis, Council surveyor.

NORFOLK.

Great Yarmouth.—Workhouse: nurses' home extension. Mr. J. D. Harman, contractor, 17 Northgate Street (£890).

NORTHAMPTONSHIRE.

Peterborough.—St. Mark's Parish Hall.

SPECIFY**CLARIDGE'S****PYRIMONT-SEYSSSEL
ASPHALTE****FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.****CLARIDGE'S PATENT ASPHALTE CO., Ltd.
21 SURREY STREET, STRAND, W.C.**TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."**Orr's Zinc White Limited**

Telegrams : "Orr, Widnes."

WIDNES, LANCS.

Telephone : No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.****ZINC SULPHIDE WHITE** (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.**"SILOX,"** a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Lunatic Asylum: extensions (£22,000).

Council School, Welbeck Road: extension (£11,000).

NOTTINGHAMSHIRE.

Mansfield.—Carnegie Free Library, Leeming Street: additions and alterations. Mr. T. P. Collinge, Borough engineer. Mr. J. Greenwood, contractor, Wood Street (£939).

Broomhill Council Schools: alterations, &c. Messrs. Vallance & Blythe, contractors, Duke Street (£558).

Nottingham.—Public Baths, the Meadows (£11,000). Mr. J. H. Richards, City architect.

Motor-bus garage, West Bridgford, for the U.D.C. Messrs. Gilbert & Hall, contractors, Crocus Street (£1,569).

SHROPSHIRE.

Market Drayton.—County Grammar School: extension (£800).

SOMERSET.

Bath.—Workhouse: infirmary.

Minehead.—Hospital (£3,000). Messrs. Hasegood & Andrews, architects, Williton.

Taunton.—St. Andrew's Club: additions. Mr. Gillingham, architect.

STAFFORDSHIRE.

Tipton.—Edge-tool factory, for Messrs. Goodrich (of Aston).

Boiler-making factory, near Factory Road, for Messrs. Joseph Wright & Co. (of Sedgley Road).

Uttoxeter.—R.C. Church: enlargement.

Walsall.—Workhouse: additions.

SURREY.

Chiddingfold.—Village Hall (£1,700). Mr. M. H. Pocock, architect.

Woking.—St. John's Church: enlargement. Messrs. Tubbs, Messer & Poulter, architects.

SUSSEX.

Horsham.—Elementary School.

WARWICKSHIRE.

Birmingham.—Cinematograph Theatre, Bath Row, for about 900 sittings (£4,000).

Picture House, Aston, for Mr. C. J. B. Perry.

Granary, Park Road, Aston: rebuilding. Messrs. Inskipp (F.R.I.B.A.) & Mackenzie, architects, 44 Bedford Row, London, W.C.

WESTMORLAND.

Kendal.—"The Brewery," Highgate: additions and alterations. Mr. J. Hutton, architect, 22a Highgate.

YORKSHIRE.

Bradford.—St. Margaret's, Frizinghall: Sunday School and Institute.

Doncaster.—Masonic Hall, Priory Place.

Keighley.—Congregational Sunday School, Spencer Street: additions and alterations. Mr. A. P. Harrison, architect, High Close.

Kiveton Park.—Council Schools: enlargement for 100 additional places (£1,000).

Leeds.—Pumping Station, Works Office, laboratory, and cottage, for the Sewage Works, Thorpe Stapleton. Mr. G. A. Hart, M.Inst.C.E., engineer, 26 Great George Street.

Pickering.—Public Hall.

Pudsey.—Public Baths and Fire Brigade Station (£4,500).

WALES.

Caerphilly.—Ten houses, for the Brookfield Building Club. Mr. H. G. Jones, architect, Hazeldene, Hengoed.

Denbigh.—(Supplementary to October 24.)—County Hall. Mr. W. D. Wiles, County architect, 42a High Street, Wrexham.

Dyffryn Chyrol (near).—North Wales Sanatorium, near Llanrhaidr, for 184 patients (£20,000). Mr. T. Taliesin Rees, architect.

Maesteg.—Premises, Commercial Street. Mr. J. C. Rees, architect, Parade Chambers, Neath.

Mold.—"Black Lion" Hotel: additions and alterations, &c. Mr. F. A. Roberts, architect, Earl Road.

Swansea.—Sanatorium, Dan-y-graig.

Metal Exchange, Fisher and Wind Streets: extension (£6,000).

SCOTLAND.

Bangour.—Tuberculosis Sanatorium for men, for the Edinburgh and District Lunacy Board.

Clarkston.—Terrace of six cottages, Overlee, for Mr. J. Merry.

Dumbarton.—Picture House, High Street, for Mr. F. R. Burnette (of Glasgow).

Dundee.—St. John's Cross Parish Church (£11,000).

Savings Bank building, Princes and Victoria Streets.

Stables, Harriet Street and Stobswell Road, for Mr. J. D. Durkie.

Warehouse, Doris and Rosebank Roads: alterations for Messrs. A. S. Smart & Co.

Workshop, &c., Clepington Road, for Mr. Robert Lang.

Edinburgh.—Employees' houses, the Braid Hills, for the Corporation.

Naval and Military Veterans' Home, Calton Road: alterations for the Trustees.

Giffnock.—Double villa, Eastwood Avenue, for Messrs. G. Dixon & Sons.

Church Hall and Offices, Greenhill Avenue, for the Kirk Session of Eastwood.

Paisley.—Public Baths, Storie Street: additions.

Factory, Violet Street: additions, for Messrs. Eadie Brothers & Co., Ltd.

Workers' Institute, Falside Road, for Messrs. Brown & Polson.

Glasgow.—Confectionery factory and Offices, Craigton Road, for Assafrey's, Ltd.

Twelve self-contained houses, Camphill Avenue. Mr. J. Wright, builder, 1 Newlands Terrace, Newlands.

Premises, Caxton Street, Anniesland: additions and alterations for Messrs. Barr & Stroud, Ltd.

Nos. 69A to 73 Waterloo Street: alterations for the General Electric Co., Ltd. (of London).

Sawmill and Offices, Bellfield Street, for the Eastern Timber and Packing Case Co., Ltd.

Screwing Shop and Stores, Holm Foundry, Cathcart, for Messrs. G. & J. Weir, Ltd.

IRELAND.

Limavady.—Court House, for the Londonderry County Council. Mr. W. Currie, contractor, Harbour View, Coleraine (£2,496).

PATENT SPECIFICATIONS PUBLISHED
OCTOBER 23, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 21,815. Sept. 25, 1912.—Dated under International Convention Sept. 25, 1911. Gustav Schlosser, Dusseldorf-Holthausen, Germany. Hoists or lifts for conveying loads of all kinds.

22,095. Sept. 28, 1912.—A. Wright & Co., Ltd., 1 Westminster Palace Gardens, Artillery Row, Westminster, S.W., and H. O. Carr, 26 West Side, Wandsworth Common, S.W., and U. O. S. Nairne, 1 Eglantine Road, Wandsworth, S.W. Apparatus for heating water.

22,219. Sept. 30, 1912.—J. C. Ferger, 1851 South East Street, Indianapolis, U.S.A. Drawing pens.

22,314. Oct. 1, 1912.—Charles Patt, Centralia, Marion, Ill., U.S.A., and C. E. Breakefield, Adeline, St. Mary, Louisiana, U.S.A. Locks.

22,407. Oct. 2, 1912.—J. H. Becker, 42 Alma Square, St. John's Wood, N.W. Ladders and fire escapes.

26,245. Nov. 15, 1912.—F. J. Wellisch, Golden Cross Hotel, 452 Strand, W.C. Safety lock.

26,756. Nov. 21, 1912.—J. I. Kirby, 3 Oxford Road, West Bromwich. Flushing cisterns.

27,176. Nov. 26, 1912.—J. R. Parker, 35 Great Hampton Row, Birmingham. Bolts for doors and for sliding and other windows.

27,317. Nov. 27, 1912.—H. Preibsch and G. Kohler, Zehren, near Meissen, Germany. Machines for making ridge tiles.

27,954. Dec. 4, 1912.—Dated under International Convention Dec. 4, 1911. Rudolf Rickmann, 17 Am Sudpark, Cologne-Marienburg, Germany. White colouring matter for enamel, glass, and glazings.

28,390. Dec. 9, 1912.—The Ridgeley Trimmer Co., Springfield, Ohio, U.S.A., and James Parkin, 26 Orde Hall Street, W.C. Adjustable scaffold.

29,857. Dec. 28, 1912.—Colonel R. E. Golightly, "Ashcroft," Wotton-under-Edge, Glos. Process for the manufacture of cement-asbestos tiles.

RUBEROID SARKING FELT

A Sarking which in itself is a waterproof covering to a building, and which will prevent damage to ceilings and decorations from roof leakage. Inodorous, non-conducting, and permanently efficient. Samples to test and full particulars will be sent on application.

THE RUBEROID CO. Ltd.

MANUFACTURERS,

22 Waterloo House, Knight rider Street, London, E.C.

2 Fouth Street,
NEWCASTLE-ON-TYNE.

37 Assembly Street,
LEITH.

1 Aston's Place,
DUBLIN.

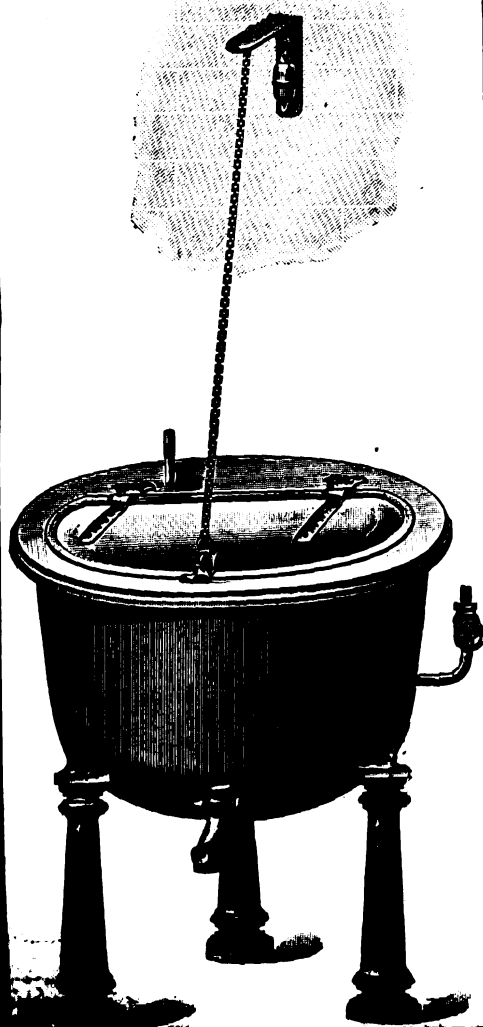
LOOK OUT FOR THE NORTH-EASTERN COUNTIES BUILDERS DECORATORS AND SANITARY TRADES EXHIBITION

Tues., Nov. 11, to Sat., Nov. 22, 1913.

Exhibition Hall, Newcastle-on-Tyne.

Important, Attractive, Bona-fide Exhibits. Invitations issued to all directly interested in the above Trades. Special Engagement of H. G. AMERS and his ORCHESTRA. Full particulars from the Organising Managers,

**Edgar W. Hart, Ltd., Emerson Chambers,
Blackett Street, Newcastle-upon-Tyne.**



William Green & Co. (Ecclesfield), Ltd., Ecclesfield, near Sheffield.

Specialists in

STEAM, GAS and COAL COOKING APPARATUS

for

INSTITUTIONS, CLUBS, HOTELS, &c.

**NEW PATENT "TRIDENT"
Convertible Open and Close Fire Range.**

Write for List.

152. Jan. 2, 1913.—G. R. Speaker, 29 Mincing Lane, E.C. Methods of and means for securing asbestos and other slabs.

1,153. Jan. 15, 1913.—J. B. Mat, 140 rue de l'Aqueduc, Brussels, Belgium. Flushing apparatus for water closets.

2,631. Feb. 1, 1913.—Tom Black, junr., 11 Peel Street, Partick, Glasgow. Device for securing slates or the like on roofs.

3,281. Feb. 8, 1913. John Nash, St. Ann's Cliff Road, Westcliff-on-Sea. Stoves and fireplaces.

6,398. March 14, 1913.—J. B. Meunier, Bourges, France. Parquet boards.

6,588. March 17, 1913.—Joseph Hilton, Beecroft Cottages, Horton-in-Ribblesdale, near Settle. Joints for pipes and the like which are required to be frequently made and undone.

7,100. March 25, 1913.—Donald Donald, Masterton, Wellington, New Zealand. Device for opening and closing fanlights.

8,745. April 14, 1913.—Thomas Jackson, 2 The Cedars, Prestbury Road, Cheltenham. Gratings.

10,721. May 5, 1913.—Firm Cyriacus und Notzel of Leipzig-Plagwitz, Germany. Method of producing ornamental objects of inlaid wood.

11,200. May 13, 1913.—H. F. Slade, Victoria, British Columbia. Stoppers for use in testing drain or other pipes.

18,145. Aug. 9, 1913.—Henry Sidebottom, 75 Hawthorne Road, Chorlton-cum-Hardy. Cheeks for firegrates.

7,751. April 2, 1913.—H. G. Moore, 52 Adelaide Road, South Hampstead, N.W. Compressed-air water filter.

8,880. April 15, 1913. Dated under International Convention, Jan. 14, 1913. P. F. Thomsen, 77 Nieuwe Parklaan, The Hague; J. A. Luij, 98 Saenredamstr, Laarlem; and W. J. Van Dam, 16 Atjehstr, The Hague. Imitation tiles.

10,250. May 1, 1913.—W. H. Tonks and Walter Sparks, of Tonks, Ltd., 201 Moseley Street, Birmingham. Panic bolts.

11,439. May 16, 1913.—W. H. Tonks and Walter Sparks, of Tonks, Ltd. Attaching door knobs to spindles.

13,221. June 7, 1913.—E. L. Reguin, 159a Albion Street, San Francisco, U.S.A., and A. J. Buckland, 1389 Grove Street, San Francisco, U.S.A. Sash locks for windows.

14,682. June 25, 1913.—Dated under International Convention, July 1, 1912. E. F. Hartshorn, Continental Hotel, 452 Broad Street, Newark, Essex, New Jersey, U.S.A. Awnings.

15,005. June 30, 1913.—F. Berger-Hahnel, 131 Ullgersdorf, near Bodenbach in Bohmen, Austria. Key-hole guard.

16,935. July 23, 1913.—Dated under International Convention, July 24, 1912. G. C. E. Liot, 14 rue de Senlis, Asnières (Seine), France. Apparatus for purifying and filtering water for private and industrial purposes.

20,425. Sept. 18, 1912.—J. W. Hartley & C. J. Hartley, Drysdale House, Newcastle Road, Stone, Staffs. Apparatus for distribution of liquid sewage for filter beds.

1,396. Jan. 17, 1913.—A. H. Close, 51 Summer Row, Birmingham. Cutting machines for operating on wood and like materials.

1,685. Jan. 21, 1913.—P. F. A. Mauroy, 63 Rue Clovis, Rheims. System of puttyless glazing.

1,991. Jan. 24, 1913.—G. A. Bohman and P. E. Netterman, Langbro, Elfsjö, Sweden. Apparatus for distributing sewage or other liquids.

5,401. March 4, 1913.—Antonio Maldonado, 6 Vangergoten Street, Madrid. Joint for woodwork.

1,968. April 4, 1913.—Dated under International Convention, June 13, 1912. Alexandre Cuvelier, 37 rue de l'Université, Paris. Drawing apparatus.

9,672. April 24, 1913.—Dated under International Convention, July 13, 1912. Alois Leistler, Hollenstein, Ybbs, Lower Austria. Locks for doors, shutters, and the like.

9,689. April 24, 1913.—Anton Schnell, 2 Hauslabgasse, Vienna. Hollow walls.

10,720. May 6, 1913.—E. L. Miller, Portland, Multnomah, Oregon, U.S.A. System of closet sanitation.

16,473. July 17, 1913.—Dated under International Convention, Jan. 16, 1913. Fabrikationsgesellschaft Automatischer Schmierapparate "Helois," Otto Wetzels & Co., 2 Romerstr, Heidelberg, Germany. Automatic lubricating device for the rails and ropes of elevators, lifts, conveyors, and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Scapa Society for Prevention of Disfigurement in Town and Country.

SIR,—To the twentieth anniversary dinner of the Scapa Society Lord Balfour of Burleigh (who introduced the Advertisements Regulation Bill of 1907 in the House of Lords) sent a message wishing all success to the efforts of the Society, and Mr. James Bryce, lately British Ambassador to the United States, wrote:—

"Will you please convey to the members of Scapa my hearty congratulations on what they have accomplished not only in rousing public sentiment here, but in setting an example which has told powerfully in America, where a similar movement for delivering rural beauty from the disfigurements of advertising has been steadily growing, and has already achieved considerable success. Some public-spirited men are organising a league of persons who are to pledge themselves not to deal with the disfigurers, and it seems that the advertisers are to be frightened into making their pictorial designs less hideous. This is at least an admission of the mischief now done.

"Much remains to be done to educate public opinion, but when one looks back twenty-five years the progress is evident, and will, I trust, make all who have worked feel that they have not laboured in vain."

Eighteen English counties have now by-laws made under the Act of 1907 in the following form:—

"No advertisement shall be exhibited on any hoarding, stand, or other erection visible from any public highway (whether carriageway, bridleway, or footway) and so placed as to disfigure the natural beauty of the landscape."

In the later cases erections visible from railways or open water are specifically included.

Many urban authorities have also obtained power to forbid disfiguring advertisements visible from parks and pleasure promenades, and similarly to protect certain scheduled "views." Several of these authorities have also power to prohibit in residential districts hoardings exceeding 12 feet in height.

This is in addition to the regulations in force in many urban districts forbidding sky signs.

The number of local authorities applying for sanction to by-laws of the kind indicated is rapidly increasing. In Westmoreland the prohibition will come into force next June, and soon after the whole country will be free from defacement by field boards.

The effect of this object lesson in saving scenery can easily be foreseen.

The Act of 1907 does not give adequate powers for the defence of villages and rural scenes (other than the open country) and of cities and towns. A Bill bringing them within the pale of appropriate regulation is in charge of Capt. the Hon. A. C. Murray, M.P., and will be introduced and pressed forward in the coming session.

Meanwhile, as every discerning traveller is aware, the influence of many great landlords has been invoked and exercised to exclude disfiguring advertising from the areas under their control.

It is the deliberate policy of most of the directors of Garden City and Town Planning Associations to provide against the entry of the evil by restrictive covenants in all leases. The voluntary renunciation by great firms in the motoring and cycle trade of the practice of roadside advertising is an illustration of the willingness of the directors of industry to defer to public opinion.

It is believed that when the existence of the means of remedy is known, all classes of the community who find pleasure in travel—notably motorists, cyclists, photographers—will co-operate in inducing local authorities to take action. The Society (25 Victoria Street, S.W.) is always ready to advise.—Yours, &c.,

(Signed) RICHARDSON EVANS.
Chairman of Committee.

PROFESSOR BERESFORD PITE, F.R.I.B.A., will deliver a course of six lectures on "English Mediæval Architecture," in the Small Natural History Theatre, Manchester University, on Fridays, at 7 P.M., beginning November 7. The fee for the full course is 10s. 6d.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST — COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonald, Sewest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*



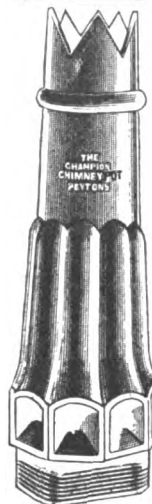
Stained Glass Windows & Leaded Glazing

Specially designed in old Colourings, to include Armorial Bearings, &c., if desired.

Estimates and designs submitted free for all kinds of work, together with testimonials showing that work of highest grade may be relied upon.

Andrew Stoddart
The Studio, 15 Long Row,
Telephone: No. 261 Y. Nottingham.

(2)



The principal feature of the **CHAMPION CHIMNEY POT** is its magnificent updraft.

For many years the "Champion" has been specified by **LEADING ARCHITECTS**, and has sold in large numbers. Architects speak highly of its **SMOKE-CURING** and **VENTILATION** qualities, and admit it to be of excellent design.

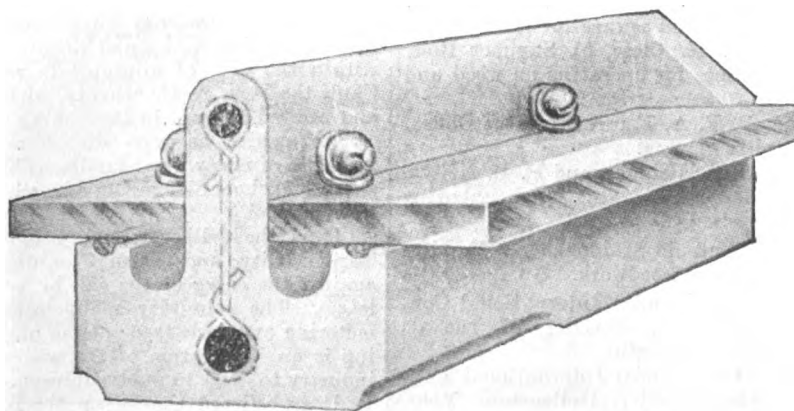
Catalogues with views and particulars on application to **The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.**

THE

Universal Concrete & Construction Co. Ltd.

PATENT FERRO STONE GLAZING.

IMPROVES WITH
AGE.



QUICK DELIVERY
ASSURED.

Beautiful in Appearance. 25 per cent. Lighter than other Glazing. Fireproof. Acid Fume Proof. Reflects the Light. Economical. Everlasting.

Designs and Estimates Free on Application.

20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 VICTORIA.

The Architect.

CONTENTS.

	PAGE
The Master Mason Theory	421
Notes and Comments	422
London By-Laws for Projecting Signs, &c.	423
Competition News	424
Illustrations :—	
Institute of Mechanical Engineers, London	424
Mausoleum, Putney Vale Cemetery	424
Interior, San Martino, Naples	424
Staircase, Poole, Dorset	424
Royal Institute of British Architects	425
Architectural Inlay (illustrated)	428
The Society of Architects	429
Birmingham Architectural Association	430
National Registration of Plumbers at Glasgow	432
The Institution of Civil Engineers	434
The Cottage Problem	434
The Leipzig Memorial (illustration)	436
Prior's Patent Heater	437
Building Progress in the Provinces	437
Glasgow Building Trades	441
British Patent Specifications	441
Correspondence	443

FORTHCOMING EVENTS

Monday, November 10.

Architectural Association : Paper entitled "Nationality in Art," by Mr. H. M. Fletcher, M.A., F.R.I.B.A., at 8 p.m.
 Liverpool Architectural Society : Presidential Address by Mr. Hastwell Grayson, M.A., F.R.I.B.A., at 6 p.m.
 Surveyors' Institution : Presidential Address by Mr. W. Edward Wooley, at 8 p.m.

Tuesday, November 11.

Institution of Civil Engineers : Paper entitled "The Construction of the 'White Star' Dock and Adjoining Quays at Southampton," by Mr. F. E. Wentworth-Shields, M.Inst.C.E., at 8 p.m.

Wednesday, November 12.

Manchester Society of Architects : Paper entitled "Dublin Architecture in the Eighteenth Century," by Mr. Page L. Dickenson, at 6.30 p.m.

Thursday, November 13.

Society of Architects : Presidential Address by Mr. Percy B. Tubbs, F.R.I.B.A., and Distribution of Students' Prizes, at 8 p.m.
 Concrete Institute : Presidential Address by Mr. E. P. Wells, J.P., at 7.30 p.m.
 Architectural Association Camera, Sketch, and Debate Club : Paper entitled "The London Building Act," by Mr. Gilbert H. Jenkins.

THE MASTER MASON THEORY.

FOR the opening address by the President of the Royal Institute of British Architects of the work of a new session, no subject could perhaps be found more suitable and certainly none more inviting than an outlook on the present condition and the future tendency of architecture. We may be inclined to question whether introspection and self-examination are ever advisable in the body corporate of artists, as they are indubitably detrimental to the individual artist, but the start of a new session is obviously the only possible occasion on which such inquiry may be made, on which the questions may be asked, where does architecture stand to-day, and whither is she travelling? There is the more reason why the first night of the Seventy-ninth Session of the Royal Institute should be devoted by the President to such questions on account of the revival during the past session, in cleverly written articles by Mr. March Phillipps, of the exploded fallacy of the inspired chief workman as the only hope of salvation for the art of architecture.

Mr. Phillipps is not the first, and doubtless he will not be the last, to hold up present-day architects to scorn, and advocate a return to a presumed mediæval system which existed only in the imagination of the critics. The arguments of the critics are based upon a collection of false hypotheses. First, that modern architecture is bad; second, that up-to-date architects are neither artists nor capable directors of building; third, that the present-day workman is inferior, perforce, to his mediæval predecessor; fourth, that the great buildings of the Middle Ages were conceived by master-working-men and not by architects.

It falls to our lot to have to estimate, critically, the value of architectural work of the present day; and, in order to do so, amid the many varied forms and shades of artistic expression, we must necessarily bear in mind the work of old time and postulate the things that matter and the things that are immaterial in architecture. No one who knows the subject can deny that, though there are many badly designed buildings and many others whose good design is spoilt in execution, just as there were in the Middle Ages, the artistic quality of present-day architecture, not only by the foremost exponents but by the great majority of the rank and file, is of a very high order.

Those who cavil at modern work start from the false assumption that all old work was good, and make the deduction that because modern work is not the same as

the old, therefore it is bad. They overlook the fact that the difference between modern and old is due to the continual development of the art of architecture. No attempt is made to clearly define wherein consists the greater excellence of old work over modern, or even to adduce adequate proof of superiority and inferiority. Neither has modern architecture been proved to be bad, nor modern architects to be devoid of artistic power and incapable directors of building.

Nor is it correct to assume that the present-day workman is inferior to his mediæval predecessor. Though limited by the theory of "one man, one job," he is within the limits of his trade or craft far superior in skill to his forbears; so far superior, indeed, that he almost obliterates from his productions the charm of accidental imperfection of hand-work in his close approach to the rigid and lifeless impeccability of the machine. Nor is it only in perfection of hand-work that the men of to-day are the equals of those of old. There are as many artists among the carvers, whether of wood or stone, and the metal workers of to-day as there were among the stone-cutters of the Middle Ages.

But the hypothesis on which Mr. March Phillipps and his kind rely as the major premiss of their argument is the most erroneous of all—that the great buildings of the Middle Ages were conceived by master-working-men and not by architects. The error arises from the false assumption that the so-called "master mason" was a mason. The critics miscall the chief person of the mediæval building enterprise a "master mason" instead of correctly recognising that he was the *magister* of the masons. The function of a *magister* was always to teach and direct; he was the *magister operum*, or *operatorum*, not the *primus operator*, the instructor and superintendent of the operative workmen, not himself an operator. He conceived the building, and with a pencil, as the skilful artist, delineated the building in a draft or plan. Some of these mediæval drafts still remain to us as conclusive evidence, if such were to any sensible person necessary, that mediæval buildings were conceived by an individual, and the conception set down in a drawing for others to bring into material existence.

The so-called "master mason" was the *magister* of the masons, because in mediæval building, apart from decorative crafts, there was no building trade but that of the mason. There were no bricklayers; the carpenters were but masons in timber, as is clear from inspection of the methods and principles on which the practice of

mediæval carpentry was based; there were no joiners till the fifteenth century. Hence he who was *magister* of the masons was necessarily the superintendent of the whole mediæval building trade. The *Maestri Comacini*, our knowledge of whom has quite recently been largely extended by the studies of Italian antiquaries, were a chartered body of "registered" architects. The *fratri* and *conversi* of the abbey of Cluny were academically trained designers of buildings as much as the students of our twentieth-century University schools of architecture.

The *magistri* of the Middle Ages are admitted by Mr. March Phillipps himself to have been "cultured men, the associates of Princes and Scholars." He might with truth have gone further to state that they were remunerated on a scale sufficient to enable them to deal with only one job at a time, and yet maintain their position in society as "associates of Princes and Scholars." The chief difference between the mediæval *magister* and the architect of the present day seems to us to be that the former received a more adequate remuneration for his services than the latter.

The *magister* needed only to know what constituted good craftsmanship in masonry, and even this he was not able always to ensure in buildings under his superintendence, whether from his own incapacity or from that of his subordinates. Peterborough, Winchester, and a host of other instances testify to the badness of mediæval building.

The modern architect, on the other hand, is forced to know as much about every division of the building trades as the craftsman in each; his inferiority to the best workman must be only in hand-skill; he must know the difference between good methods and bad, between good and bad material, between good and bad handiwork in every craft. All this he must acquire in addition to a knowledge of architecture, of design, of construction, of the combination of the several trades to the erection of a complete building.

Even if we were prepared to throw over the system under which, from classic times to the present, the greatest works of architecture have been achieved, which of the several divisions of the building trade is to be the leader and director? The skilled labour of the building trades has firmly established in its presumed own interest the principle of "one man, one job." Is the bricklayer to rule and direct the plumber, the mason to control the carpenter, the hot-water fitter the painter and glazier? Or is each building to be determined in plan, elevation, section, and specification by a committee of chief-workmen or trade union officials from each trade? The present continually recurring internecine struggles between bricklayers and plasterers, hot-water fitters and plumbers, bricklayers and tilelayers, hardly presage smooth determination not only of what job belongs to each man, but also of how much of each job there should be in any particular building.

NOTES AND COMMENTS.

THE completion of Sir Aston Webb's new front to Buckingham Palace has inspired Mr. March Phillipps with a text for one of his characteristic diatribes in the *Morning Post* against modern architecture, and as usual he falls foul of the details. After admitting that "it is undoubtedly in a certain sense imposing. Most people will, I believe, feel, when they first glance at this huge but sternly regulated front, that it attains an air of at least semi-official grandeur. It is much what we have got into the habit of believing that a great national building should be. The stateliness and dignity fulfil all our expectations," he goes on to object that "what we have more particularly to observe is that it is, of course, completely alien to modern life. The forms and features it employs are transplanted bodily out of the art of another age and race. The long array of acanthus-leaf capitals of the Palace front, the rigid mouldings of the entablature, all the details of frieze and pediment, reiterated with a kind of deadly mechanical precision,

are all of them forms which, when they enclosed classic life, themselves lived with that life. But this life of theirs was lived many centuries ago, and we to-day can no more revitalise the actual forms of classic art than we can live over again the thoughts which inspired them. No bones of Egyptian mummies were ever deader than these bleached relics of the art of another age. They do not interpret the life of the present, or recognise its claims in any way. Classic architecture, as we adapt and use it to-day, does not even pretend to derive any of its importance from the thoughts and emotions of living generations. It is not imposing because of the power with which it expresses life. Not at all: its imposingness is of the other kind. It is imposing because of the completeness with which it dominates life and uses it for its own purposes. There is undoubtedly something that inspires a certain awe and a certain deference merely in the assertion of a crushing will and an indisputable authority. Such a façade as this of Buckingham Palace is imposing in a certain sense: in the sense, that is to say, in which the Pyramids rather than the Parthenon are imposing."

The mistake that the critic makes is that he fails to recognise that the "imposing" effect of the façade is due to quite another cause than the "acanthus-leaf capitals" and other details of classic Roman origin, that proportion and composition are the factors of "stateliness and dignity," and might equally be effective in these products if united with elemental forms derived from Byzantium or modern Berlin. We are scolded because our twentieth-century architectural language uses the words that were adopted in our vocabulary in the seventeenth century and used continuously since then, despite the attempts of the Gothic revivalists to revert to an archaic verbiage. To be consistent Mr. Phillipps should indite his columns in the *Morning Post* in the words and speech-forms of King Alfred or in Esperanto; then he might, logically, castigate modern architecture for ignoring the language of the Middle Ages or some as yet undiscovered expression of "the thoughts and emotions of living generations." But Mr. Phillipps's language is a compound of Anglo-Saxon, Latin, Greek, and many other elements, just as modern architecture is compounded of Gothic and Renaissance, and contains, indeed, no more classic derivatives than does his vocabulary and diction.

The penultimate stage of preparation for the Admiralty Arch Improvement may be considered to have been passed by the London County Council's adoption of a resolution to the effect that the Government be requested to undertake the promotion of a Bill seeking Parliamentary authority for the completion of the Mall to Charing Cross improvement in accordance with the scheme approved by the Council. The three bodies immediately concerned—the Government, the London County Council, and the Westminster City Council—have, as has been already recorded, agreed to divide equally the cost estimated at £115,000 net, and the proposed Government Bill will provide for the acquisition of the properties of the Insurance Companies and Messrs. Anderson's, so as to provide the site necessary for completing the improvement.

The conduct of building affairs in the Haytian Republic, as illustrated by the procedure adopted in preparation for the construction of a national palace at Port-au-Prince, may perhaps seem somewhat Gilbertian. The contract for the building has been awarded to Mr. G. Baussan, the Haytian architect who designed the building, and the Board of Trade Journal now informs us that he is negotiating with the Government in order to obtain suitable guarantees for payment for the work; but it is by no means an uncommon thing abroad for architects to undertake contracts for the erection of the buildings that they design, and one can quite understand the architect-contractor for an important building being desirable

to obtain suitable guarantees for payment before commencing building, especially in Hayti.

At a meeting held at Birmingham under the joint auspices of the University and the Birmingham Archaeological Society, an interesting short account of the progress of the excavations at Uriconium was read by Mr. Bushe-Fox, the director of the work, in the course of which he said that the coins found numbered about 700, and ranged from the Republican period—that is, before 23 B.C. to the Emperor Theodosius I. (388-392 A.D.). There were a large number of coins of the last half of the fourth century. The entire absence of any belonging to the fifth century could only mean that, at any rate, the part of the site uncovered was not inhabited at that period. Why the occupation ceased then, and what was happening in Britain at that period, were among the many interesting problems that it was hoped would be solved by those excavations. On the proposition of the Lord Mayor of Birmingham it was resolved that a fund be opened in Birmingham to assist in the excavation of the site of the Roman city of Uriconium, and a large and influential committee was appointed on the motion of Dr. Rendel Harris, who expressed the hope that in the large and growing University of Birmingham they would have a faculty capable of taking up some of the work of discovery in Egypt, Mesopotamia, and Syria, so that it would not all be left to the Germans to do. Mr. Alfred Hayes was appointed treasurer, and Professor Sonnenschein and Mr. John Humphreys joint hon. secretaries of the fund.

A correspondent of the *Morning Post* announces that an important archaeological discovery has been made by Professor Ferri near the Baths of Caracalla. He has found a large subterranean gallery, over half a mile long, as well as drains for carrying away the water from the baths, with the places where the slaves kept the towels for the bathers and the wood for heating the furnaces. In one of these drains he has come across the fragments of a marble group of statuary, representing Mithras killing the sacred bull, whose blood is flowing down its sides, while a dog and a snake are licking the bull, and a scorpion is biting it. The Baths of Caracalla were already known to have been connected with the worship of Mithras, as Senator Lanciani has shown.

Mr. Louis Ambler, in a letter to the *Yorkshire Post*, calls attention to an announcement that Norland Old Hall has been sold to a London firm of antique dealers, and is to be removed and re-erected near Croydon, in Surrey. Anything more incongruous can hardly be conceived than the transference of a typical West Riding house to what is to all intents and purposes to-day a London suburb, but such is the mania—fostered by the dealers—for antiques, that the Philistine takes little heed of congruity or of the consonance of old work with its environment. We are glad to know that Mr. Batsford will next month publish a volume on "The Old Halls and Manor Houses of Yorkshire," by Mr. Ambler, which the present ruthless ravages of the dealer in antiques has rendered absolutely necessary, for before the Royal Commission has finished its inventory it is to be feared that the number of old houses remaining intact and in situ will be sadly diminished.

LONDON BY-LAWS FOR PROJECTING LAMPS, SIGNS, &c.

The Building Act Committee of the London County Council have recommended that the following by-laws be adopted for sanction by the Local Government Board under Section 164 of the London Building Act, 1894:—

By-laws for the Regulation of Lamps, Signs, or other Structures Overhanging the Public Way not being within the City of London.

Note.—In these by-laws "local authority" means the Metropolitan Borough Council in whose district the lamps,

signs, or other structures, the subject of these by-laws, are fixed, fitted, erected, or retained.

1. A person shall not after the date at which these by-laws come into operation fix or fit any lamp or any structure supporting or carrying the same, nor shall he retain any lamp or structure supporting or carrying the same fixed or fitted after such date so as to overhang the public way in such manner that any part of such lamp or structure respectively shall (i.) be at a less height than 8 feet clear above the surface of the footway immediately under such lamp or structure, or (ii.) be nearer to the carriageway than 2 feet 6 inches from the outer edge of the kerb, or (iii.) project more than 5 feet from the wall or shop front of the premises or the post or upright support to which it is attached.

2. A person shall not, after the date at which these by-laws come into operation, fix or fit any lamp which, including framework and ornaments, exceeds 3 feet in any part when measured in any direction horizontally, or which, including framework and ornaments, exceeds 5 feet in height, or which weighs more than 84 lb., nor shall he retain any such lamp so fixed or fitted after such date so as to overhang the public way. Any lamp which may lawfully be fixed or fitted under this by-law shall be provided with a secondary means of security of sufficient strength to sustain safely the whole weight of the lamp against falling away from its support.

3. A person shall not, after the date at which these by-laws come into operation, fix or fit any sign or any structure supporting or carrying the same or any other structure, nor shall he retain any sign or structure supporting or carrying the same or other structure fixed or fitted after such date so as to overhang the public way in such manner that any part of such sign or the structure supporting or carrying the same or other structure respectively shall (i.) be at a less height than 8 feet clear above the surface of the footway immediately under such sign or structure, or (ii.) be nearer to the carriageway than 2 feet 6 inches from the outer edge of the kerb, or (iii.) project more than 4 feet from the wall or shop front of the premises or post or other upright support to which it is attached. Provided, nevertheless, that if any such sign or structure shall extend more than 2 feet (not including stays or supports) along the face of such wall, shop-front, or support, then such sign or structure shall not project more than 2 feet.

4. A person shall not, after the date at which these by-laws come into operation, fix or fit any sign or other structure which exceeds 2 feet 6 inches in height or extends more than 6 feet in any direction (not including stays or supports) along the face of the wall or shop-front of the premises or post or other upright support to which it is attached, nor shall he retain any such sign or other structure so fixed or fitted after such date so as to overhang the public way.

5. A person shall not fix, fit, or erect any lamp, sign, or other structure coming within the terms and provisions of these by-laws unless and until two clear days' notice, in writing, of intention to fix, fit, or erect such lamp, sign, or other structure shall have first been given to the local authority.

6. The London County Council, after communication with the local authority or otherwise, may in any case in which it may consider it expedient so to do dispense with the observance of any of the foregoing by-laws on such terms and conditions (if any) as it may think proper.

7. Any person who commits any offence against any of the foregoing by-laws shall be liable for every such offence to a penalty of £5, and a daily penalty of 40s. for every day during which such offence continues after conviction.

Provided, nevertheless, that the Court of Summary Jurisdiction before whom any proceedings may be taken in respect of any such offence may, if the Court think fit, adjudge the payment of any sum less than the full amount of the penalty imposed by this by-law.

8. These by-laws shall not apply to—

(a) Any balcony, shelter, covered way, or other projection overhanging the public way (not being a lamp, sign, or other structure within the meaning of these by-laws) which has been or shall at any time hereafter be duly sanctioned by the London County Council under the London Building Acts or any other statute in that behalf.

(b) Any movable sun-blind overhanging the public way, no part of which, or of the stay bars or other fittings of which, except any vallances or side blinds, shall when open be below an imaginary straight line drawn from a point 7 feet above the footway at a distance of 2 feet from the outer edge of the kerb to a point 7 feet 6 inches above the footway adjoining the front of the shop or premises to which

such blind is fixed or fitted, and which shall not be nearer in any part to the carriageway than 1 foot 6 inches from the outer edge of the kerb, or any vallance or side blind which does not project more than 2 feet from the front of the shop below the level of 7 feet 6 inches above the footway.

(c) Any lamp or structure supporting or carrying the same overhanging the public way which may be fixed or fitted at not less than 7 feet 6 inches in the clear above the surface of the footway immediately under such lamp, and so as not to project in any part from the line of the window frame of the shop more than 3 feet and so as not to be nearer to the carriageway than 2 feet 6 inches from the outer edge of the kerb, and which shall be solely for the purpose of illuminating such windows from without, the lamp itself not to exceed 36 inches in height, 24 inches in width parallel to the face of the building, and 24 inches in depth from front to back of lamp in clear, including any ornamentation and chimney.

(d) Any gas rail or pipe overhanging the public way used for the purpose of illuminating shops from the outside which has not a greater projection than 2 feet from the shop front, and which is not less than 7 feet 6 inches above the surface of the footway immediately under such rail or pipe.

(e) Any daylight reflector or prismatic light overhanging the public way which has not a greater projection in any part than 2 feet 6 inches from the face of the building to which it is attached, and which is not less than 7 feet 6 inches above the surface of the footway immediately under such reflector, and which is securely fixed.

(f) Any lamp provided by a local authority for the purpose of lighting a street.

COMPETITION NEWS.

COVENTRY.—Members and Licentiates of the Royal Institute of British Architects are advised that the conditions of the new Technical Institute competition are not in accordance with the Institute regulations for architectural competitions, and the Competitions Committee are in correspondence with the promoters with a view to getting them amended.

ECCLES.—In connection with the proposal to erect a new Council School at Winton, the Education Committee have selected the designs of Mr. John Knight, of 5 Cross Street, Manchester, in the architectural competition.

SHIPLEY.—The District Council at their last meeting approved the conditions to be submitted to architects who are to be invited to submit plans for the proposed public offices on the Manor House Estate. It was agreed that the scheme should include the provision of a caretaker's house, the total expenditure, excluding electric lighting, furnishing, and heating, not to exceed £10,500.

The London Society will hold the first of a proposed series of three informal dinners at the Waldorf Hotel, on Tuesday, the 11th inst. A discussion will be opened by Mr. H. B. Wheatley, F.S.A., on "London in the Past." Particulars may be obtained from Mr. Percy Lovell, B.A., the secretary, 27 Abingdon Street, Westminster, S.W.

H.R.H. PRINCESS LOUISE, DUCHESS OF ARGYLL, on Friday last cut the first sod and planted the first tree on the site of a garden village about to be erected at Alexandria for the workers employed in the motor works of Argylls, Ltd. The site is a beautiful one. Argylls, Ltd., are giving the ground, which extends to twenty-three acres adjoining their works, on exceptionally favourable terms to the Vale of Leven Tenants, Ltd., a company formed by the workers, who number about 1,500, and of whom about one-third at present travel daily from Glasgow. Limited to twelve per acre, the houses will number about 250 in all, sites being reserved for halls, &c. The first houses are to be grouped in blocks of four, each containing two rooms and kitchen, with bathroom, scullery, pantry, and other conveniences, the sizes of the apartments being:—Room (including octagonal oriel end), 17 ft. 6 in. by 11 ft. 9 in.; kitchen, 14 ft. 6 in. by 11 ft. 9 in.; bedroom, 10 ft. 6 in. by 8 ft.; bathroom, 7 ft. by 5 ft.; scullery, 8 ft. by 5 ft. 6 in.; and pantry, 4 ft. by 3 ft. The total cost of each house is estimated at £250, and the rent is to be 7s. 9d. per week, including rates and taxes, or £20 3s. per annum. Messrs. James Salmon & Son, F.R.I.B.A., Glasgow, are the architects of the scheme.

ILLUSTRATIONS.

THE INSTITUTE OF MECHANICAL ENGINEERS.

THE additions to the home of the Institute of Mechanical Engineers, Great George Street, Westminster, have been carried out from the designs of Mr. James Miller, A.R.S.A., who, as our illustration shows, has not felt himself constrained to follow the detail of the original building.

A MAUSOLEUM.

OUR illustration shows a mausoleum lately erected in a cemetery near London, from designs by Mr. F. Dare Clapham, F.R.I.B.A.

It is 20 feet long, 12 feet wide, and 13 feet high from the ground to the top of the cornice.

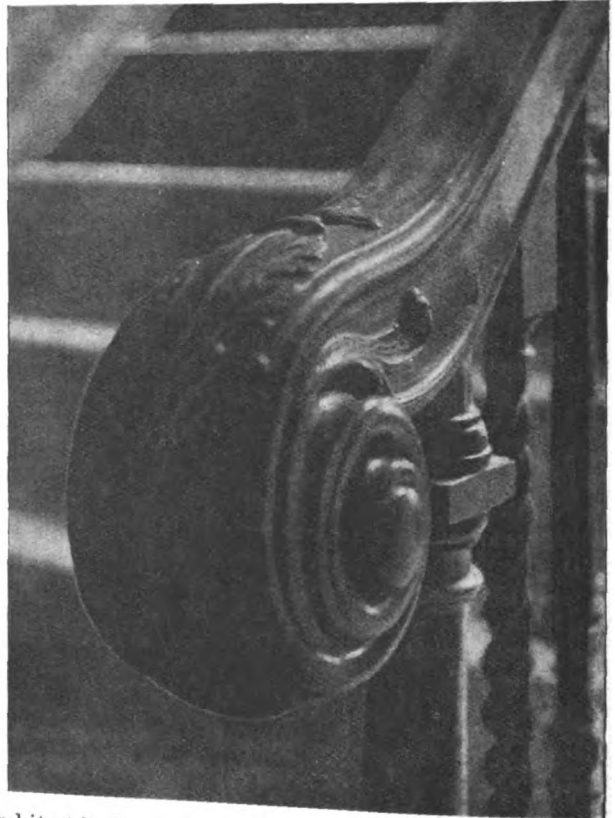
It is executed in the finest Pentelikon marble, and internally panelled and paved with Cipollino marble. The ceiling is covered with dull gold mosaic. The enclosures to the shelves on which the coffins will rest are inlaid with Aventurine marble, and the inscription tablets are of bronze. The door is of cast bronze, and it was modelled and executed by the Bromsgrove Guild, who also were responsible for all the bronze metal work. The stained-glass window was executed by Messrs. Wainwright & Waring, and the whole of the marble work was carried out by Messrs. Farmer & Brindley.

CHURCH OF SAN MARTINO, NAPLES.

OUR view of the interior of this church shows one of the examples of architectural inlay mentioned in Mr. Tavenor Perry's article.

STAIRCASE AT 20 MARKET STREET, POOLE, DORSET.

THIS excellent example of eighteenth century art, drawn by "If," was submitted in the monthly competitions of "The



Architect" Students' Sketching and Measuring Club, and awarded a prize. We illustrate from a photograph the termination of the handrail.

MR. R. ANNING BELL, Professor of Design at Glasgow School of Art, has been commissioned to complete the mosaic decorations of the Lady chapel in Westminster Cathedral, and to fill the great tympanum over the west door with mosaics. He has also been entrusted with the important work of designing a mosaic ceiling for the grand staircase in the new extension of the British Museum.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE opening meeting of the Royal Institute of British Architects was held on Monday, the 3rd inst., at the rooms in Conduit Street, W. Mr. Reginald Blomfield, A.R.A., President, occupied the chair.

After some formal business had been transacted, Mr. Blomfield read the following

Presidential Address.

In an address which I had the honour of giving in this room on a recent occasion I reviewed in a very cursory way the ups and downs of architecture in this country during the last hundred years. I brought my survey down to the rise and gradual failure of the Gothic Revival. To complete the main outlines of the picture, it is only necessary to remind you of the reappearance of Classic, and its gradual consolidation within the last twenty years. At the moment of its triumph, Neo-Gothic was already undermined by the rhetoric of its advocates, and even by the adventurous spirit of some who had been trained in the strictest sect of the Pharisees. It is now many years since raiding expeditions into the territory of the Renaissance were made by Devey, Nesfield, and Norman Shaw; and these have been followed up by a systematic study of Classical architecture which has resulted in the recapture of some at least of the scholarship of the art. Undoubtedly interest in architecture is more widespread than it was, and our literary friends are well to the front, telling us of our failures, what we ought to do, and how to do it. Experienced architects are not very likely to be turned from the course they have set themselves by criticism and clamour, but the rising generation may feel some doubt and perplexity, and I think the time has come to take stock of the situation so far as it is possible to do so.

It is not an easy thing to do, and I must ask for your tolerance if I seem to you to misread the signs of the times. It is difficult to appreciate contemporary art with any certainty. One cannot get far enough back from it to place its features in right perspective. The tendencies that result in history do not lie on the surface, and what appears to be a new light may be only the will-o'-the-wisp of a passing fashion. Moreover, the problem of architecture is very complex; and, as the power of literary expression is seldom in ratio to technical knowledge and ability, our guides and critics may possibly misapprehend the situation, and leave unnoticed those strong impulses in artists themselves which must be the foundation of any real progress in the future. Our critics do not always grasp the continuity of architecture, and its solid basis in facts, and, I believe, it is this omission which explains their hankering after new styles and their clamour for originality, no matter whether it is good, bad, or indifferent. For some generations art criticism has suffered from a certain feverish impatience, which has blinded it not only to the intimate and necessary connection of the architecture of to-day with that of the past, but also to the germs of future development, latent in that contemporary art which it is the common practice to minimise and disparage. It is only a few years back since critics, whose training should have given them more insight, complained of a lack of initiative in those who through good report and evil steadily pursued our national tradition of Classic architecture. Time has justified those men, and a very few years have shown the practical certainty of disaster that waits upon jumps into space.

That point of view has been dropped by serious critics, and our professional writers are too well informed to believe in the value or even possibility of any violent cataclysm in architecture, such as that now being attempted by the Futurists and the Cubists in painting and sculpture. We, at any rate, know that architecture is too serious an art to pay any attention to quack remedies. Meanwhile, architecture, or, perhaps, I should say architects, are attacked from another quarter, and the attack, I do not know whether consciously or not, is a repetition of the polemic of the Neo-Gothic enthusiasts of the 'seventies. A clever writer in the *Morning Post* has drawn a charming picture of those glorious days when Gothic architecture was run entirely by the Guilds: when the workman was unchecked by the architect and his T-square, working his own sweet will as a free and glorious artist; when the building craft was the greatest in the world and the Guilds were its embodiment, storehouses of knowledge, "the vat," if I may quote his words, "into which the experience of all ran." The master masons, he asserts, were "cultured men, the associates of Princes and Scholars; they built with extraordinary audacity and imaginative resources." We are now told that architecture

has lost this fount of inspiration, and we are bidden to throw over our scholarship, our draughtsmanship, our powers of design, our trained technical ability, and watch the "felicity of action and latent understanding" with which "a mason tosses and turns a brick." (I may mention in passing that the Bricklayers' Union would very soon be on his back if he did!) The writer, Mr. March Phillipps, is so haunted by the idea of an architect that he goes so far as to say that he never met a man, other than an architect, who had a good word to say for the architecture which ranges from the reign of James I. to that of George V. I think he must have forgotten Greenwich Hospital and Hampton Court, St. Paul's Cathedral and Somerset House; and without desiring to enter into controversy one is compelled to question the historical accuracy of Mr. Phillipps' charming idyll. I seem to detect the trace of an ingenious theory which a few years ago was spun round an obscure association known as the Comacine masters. Were the Guilds the last refuge of the building art?—the high-minded guardians of all that was noble and beautiful in architecture, thrust out of place by an arrogant intellectualism? Were they not, in fact, so hopelessly corrupt in their latter days that the "adverse legislation," as Mr. Phillipps calls it, became an absolute necessity of intelligent government? I would ask also—Were the Mediæval workmen the consummate masters of the building art that our critics would have us believe? Is it not also an historical fact that many of them built extremely badly, that church towers of the fifteenth century have simply collapsed in France, that some of their most ambitious ventures in construction, as at Beauvais, failed almost at once, and had to be precariously maintained by a network of iron bars? Those who have had the handling of old buildings have had it driven in to them again and again that the average building of the Middle Ages was inferior rather than not. I am talking simply of building, not in any way of design and details of ornament, and I say deliberately that at the beginning of the sixteenth century most of the master-builders were bad builders; and if our critic has any doubt on the matter I would remind him of what happened in France in the reign of François I., and of the contemporary evidence of Philibert de l'Orme on the master-builders of his time.

Our critic imagines a divorce between the modern architect and his workmen that does not exist. "Labour," by which is meant the skilled labour of the building trades, is not in "the state of helpless ineptitude and dull impotence" which Mr. Phillipps supposes. The architect is not a truculent and arbitrary tyrant, any more than the workman is a heaven-born but down-trodden artist. They are both, let us say, honest men trying to do their allotted work, and some of them do it exceedingly well. All good architects value a good workman; the unsympathetic attitude of architects is wholly imaginary, and the phrase "the untravelled workman" which Mr. Phillipps imputes to me, was, if I recollect aright, the invention of a somewhat intemperate champion of the Art-master, and I am not conscious of ever having used it at all. Mr. Phillipps makes a distinction between "creative construction" and "imitative construction"; the first he identifies with Gothic architecture, the second with Classic. Surely this begs the whole question; this distinction, which is to be the key to the architecture of the future, is only a repetition of the outcries of Ruskin. Nobody, no practising artist at any rate, ever thought about such things before his time. The idea is of purely literary origin: it has no justification in history; on the contrary, it makes the serious error of overlooking the work of tradition in both Mediæval and Classical architecture, that slow and almost unconscious moulding of architectural forms from generation to generation. It is an idea that has arisen from the habit of regarding the details of architecture as architecture itself, of concentrating attention on words rather than on language. Nor, as a student of the history of architecture, is one in the least disposed to accept the assertion that the architect is the *fons et origo malorum* in architecture, and that he is so by reason of his trained ability, for that is what the charge amounts to. The more closely one studies certain contemporary criticism of the arts, the more convinced one is that it is inspired by the dictum of the celebrated "Capability Brown," that "knowledge hampers originality." Mr. Phillipps says that in Mediæval building there was not "a sign of a dictate, automatically delivered and passively accepted," but he has himself to admit that in more "important operations" the work would be "supervised by some craftsman of more than local repute." Indeed, unless human nature was different in kind in Mediæval times from

what it has been both before and since, building operations could only have resulted in Towers of Babel unless there was somebody in control whose dictates were both delivered and accepted. That he was not equipped as a modern architect we are all agreed, but that he was a person of superior knowledge in control of the workmen is also certain, and this knocks on the head the engaging theory of the workman and his own sweet will. We have to get back to the facts, and I have dealt at some length with this criticism of modern architecture, because Mr. March Phillipps writes so well that some danger to the right understanding of the art lurks in his well-timed sentences. The views that he advances are, I think, off the track of history. No serious advance is to be made by turning our back on the immediate past, or blinking the facts of the present and trying to jump the centuries. This idea that the hope of architecture lies in the untrammelled (not untravelled) genius of the British workman is the merest *ignis fatuus*. Anyone who has first-hand acquaintance with the condition of modern building, with the methods of modern construction, with the qualifications of the modern builder and the temper of the modern employer, knows that the suggestions of our critics are impossible in practice, and that even if they were possible the result would probably be an exaggerated version of the efforts of the speculative builder. The man of genius who first made popular this delightful dream of Mediæval art had the excellent sense to call his message "news from nowhere." Morris's theory of architecture was just the expression of his own temperament, and the logical corollary of his personal conception of architecture as the drudge and vehicle of decoration on the one hand, and of practical necessity on the other. This view is constantly reappearing in modern criticism, but I would remind our critics that architecture is the greatest of the plastic arts, and that it is not its function to sit at the feet either of the ornamentalist or of the engineer. I do not think that architects were seriously alarmed as to the future of their art. They will agree heartily with Mr. Phillipps in his search for simplicity and sincerity of statement. Where they will entirely decline to follow him is in his subordination of architecture to the ignorance and incompetence of "average labour"—(the phrase is Mr. Phillipps', not mine).

So far I have endeavoured to put before you what I may call external criticisms of architecture. We cannot entirely disregard them because they are widely read by the general public; and, as they are usually stated in excellent English, they may have a far-reaching and unfortunate influence, against which we have to be constantly on our guard. The difficulties in which the art was landed by the unbalanced eloquence of a great writer in the last century are a matter of common knowledge.

Now let us consider the art from our own point of view. Anyone who has studied history knows how slow and gradual has been the growth of architecture, by centuries in Mediæval times, by half-centuries from the dawn of the Renaissance down to the end of the eighteenth century. These advances, too, have been made not by deliberate intention, but almost on compulsion, in order to meet the changing needs of a constantly expanding civilisation. Looking back on the past, we can trace the successive steps, we can show the development of construction and the gradual perfecting of technique, and we can follow more obscurely the trend of artistic thought, the gradual consolidation of those impulses which lie at the back of vital movement in the arts. The road is unbroken—where we miss it there is no hiatus in fact, but only in our knowledge of the facts, and if there is one thing more certain in history than another it is that of all the arts architecture is the most steady and consistent mover. The idea of the Futurists that architecture will advance by being turned upside down is not worth the consideration of serious students.

On the other hand, the arts do not stand still, architecture least of all, because it is essentially a practical art. Fresh problems present themselves in planning, provision has to be made for the ever-widening range of applied mechanical science, new methods of construction have to be considered, the practice of architecture becomes more difficult every year, and the modern architect has to deal with a range of subjects which would have paralysed his grandfather. The question we have to consider is how far these changed conditions are likely to affect design, and how we architects should set our course if we do not wish to drift on to the quicksands of futile experiment. It has sometimes been suggested that the future of architecture lies in a resolute rejection of all the accepted forms of architectural

expression. What we are to do after this I am not quite clear, because some of our critics tell us that we should leave our steelwork and our reinforced concrete just as it is, and others want us to spin new forms out of our inner consciousness. Our critics are so dreadfully impatient, architects may well say, like the unfortunate debtor, "Have patience with me, and I will pay thee all." But that is just what we are not allowed to do, because our public is never quite sure whether we are the enemy of society or the *Deus ex machina* who can resolve every conceivable difficulty. The past fifty years has seen some desperate endeavours to invent something new, experiments in various styles in the past, and experiments in what is fondly believed to have no relation to the past. I think it is time we gave up these conscious and artificial attempts at originality, and let it find itself. Where our critics go wrong is in demanding a new language when they ought to be demanding new ideas. The old language will do very well if we are masters of it and have the brains to use it to the full.

Meanwhile, history has been making itself, and making itself in a rather curious way. If we go back to the last quarter of the nineteenth century, we find that the orthodox Classic of the older school had dwindled away to dullness and decrepitude, the Gothic revivalists had broken loose in all directions and afterwards lost their clue, having condensed into some thirty years all the variations of an art that had taken five centuries to run its course. The more original among these men had for years been feeling their way out with tentative excursions into the Renaissance: Nesfield at Kinnell, Devey in many a picturesque country house, Norman Shaw, who with all his genius in design, reached his Classic too late in his career, and close on the heels of these came men who, I am glad to say, are still with us, and who won their spurs when some of us were still in our articles. Meanwhile a generation has grown up no longer content with odds and ends of detail, however picturesque, but anxious to get to the heart of things, and to grasp the informing spirit of Neo-Classical architecture. The technique of the art in its widest sense, not only in the nuances of detail, but in the larger aspects of planning and composition, rhythm, and proportion, has received in recent years a study and attention such as had not been given to it since the days of Cockerell, and we have now before us versions of Neo-Classical which deserve to be taken seriously, and out of which, I believe, may ultimately develop that standard manner which is essential to the appearance of any such vernacular art as existed in civilised Europe in the first half of the eighteenth century. I think all close observers of modern architecture will admit this real advance, and this gradual *rapprochement*, as I have to call it, of the ablest designers that we have. It exists so far in a common point of view rather than in an identical manner, because we have varying versions of Classic all worth taking seriously—the attempt to pick up the thread of Cockerell's tradition—a possibly somewhat dangerous leaning towards the fashion of our colleagues in France—and the more sober manner based on our own Classic of the earlier part of the eighteenth century. That any one of these should sweep the field entirely is neither to be expected nor to be desired. Such a result would be alien to the genius of our race for individualism and its robust dislike of pedantry.

Nor would it be a complete synthesis of all the factors in the case, for ecclesiastical architecture has yet to be taken into account. Our English clergy still cling to Pugin's totally unhistorical claim that Gothic is the only possible form of religious architecture, and, Classical churches being ruled out of court, our architects have to persevere with Neo-Gothic. Let me say at once that some of them design in it with great ability, and that, so far as my observation goes, the architects of this country are the only ones who have got within range of the subtle and elusive spirit of Mediæval art, so far as it is possible for any one to do so. Then, too, there is that Byzantine strain which found such wonderful expression in Bentley's church at Westminster. Its influence is less marked than it was, but it has been a valuable factor in the advance of architecture, because in its austerity and reserve, in its feeling for surface ornament and the value of abstract form, it is akin in spirit to the purer forms of Classic art. All these elements the wise artist has to note, and in spite of their different idioms, he may find a certain bond of kinship in their constant effort after simplicity of statement, and even the most ardent Classicist may learn a lesson from the elasticity and resourcefulness of Gothic.

Let me say at once that I am not advocating the

eclecticism that has done duty for design in the past. Every artist has to find his own personal method of expression, but the wider and deeper his range of study, the more flexible and the more assured will be his art. Craftsmanship in the sense of the dexterity of hand acquired by specialised work in one direction and on one material is an admirable thing, but it is not architecture, nor does it represent the aim and ideal of an architect in regard to his art.

The only effective source of development in architectural form must be new conditions of building, and this will be very different from that new and original style for which our critics hanker. The fashion of ornament may change, but the problem of architecture does not lie with ornament, and the epoch-making discoveries in the art have arisen from practical necessities handled in the most direct and even uncompromising manner. Witness the Colosseum and the dome of the Pantheon. The designers of these great buildings did not trouble their heads about inventing fresh detail; what they found to hand was good enough for them. Where the Roman architect was so great, greater even than the Greek, was in the masterly handling of a great conception, in that power of bringing the mind to play on the actual facts. The American skyscraper is also an example of a new form arising from new necessities, though the solutions have not always been happy, because the essential elements of tower design have been forgotten. It comes, I think, to this, that although new architectural forms in the sense of new outlines, new groups and masses will naturally develop out of the changing problems of civilisation, no necessity arises for anxious effort to change the ordinary vocabulary of architecture. Perhaps of all futile experiments in originality the competition for a new French order to glorify Louis XIV. was the most gratuitous and the most ridiculous.

The question still remains how we are to deal with inventions such as reinforced concrete when used for the exteriors of buildings. Are we to adhere to the shibboleth of the Gothic revival, and show our construction naked and unashamed, and are we to suppose that our æsthetic sense will alter so materially that we shall presently find pleasure in ranges of openings supported and separated by the thinnest piers to which the engineer can reduce our points of support? What may happen to our æsthetic sense in the future no one can say, in view of the chronic assaults made on the sanity of the public. The only evidence is what has happened in the past, and that evidence shows that though from time to time there have been eccentric aberrations, the orbit of taste has ranged between fairly determinable points, and those points have not included such skeleton building as is of the essence of reinforced concrete construction. If, as I incline to think, our dislike of it springs from some deeper instinct than mere unwillingness to change, we must reserve our freedom to use inventions such as reinforced concrete as mere instruments of building in the same manner as we use steel construction, or as the Romans used their system of brick ribs and arches. I see no reason why, in dealing with this and similar methods, we should not avail ourselves of all the weapons in our armoury, translating our construction into such forms as will best express the central conception of our design. In other words, we are not compelled to subordinate our design to the instruments we employ. There is always a touch of the aristocrat about the mistress Art.

What conclusion is to be drawn from the considerations I have endeavoured to put before you? What is it we should aim at, and how far are we likely to realise our aims?

We have to accept the fact that we are at the end of 150 years of eclecticism. The last genuine tradition died with Chambers. His successors carried on his manner, but other elements had come into play, the Romantic movement on the one hand, and the age of archæology on the other. Architecture, most unfortunately, came within the literary net, and it has not yet escaped it. Hitherto—that is, till the latter part of the eighteenth century—architects had studied old work assiduously, but it was with the object of perfecting their technique. The archæologists have worked with quite different objects, and though they have done invaluable work in extending and correcting our knowledge of the past, their labours have had the curious result of placing architecture on the wrong issue, and of reducing architects from time to time to a state bordering on imbecility from the very profusion of the details at their disposal—a fact that will need attention in the conduct of the new British School at Rome. From this state of things I think we are emerging; the limits and the relation to each other of architecture and archæology are becoming clearer, and the conviction has been steadily growing in the mind of archi-

tecs that details are but the outside of the cup and platter, and that their value is conditional on the use that is made of them. This is the first step towards the reorganisation of architecture and its recovery from the chaos of the nineteenth century.

We cannot escape the difficulty of modern architecture, that we are offered too wide a choice, that there are too many wells to draw from in the interminable issues of photographs and illustrations, and also that there are too many fashions set by irresponsible people. The temptation to yield should be met if our architecture is to be robust; and the way to meet it is to shape differently at the problem of design, to search for the idea, and let the form develop out of it. A master idea carries with it its own expression, and to a mind well stored with the language of architecture, the form follows the idea so closely as to be almost inseparable from it.

I am not going to attempt any prophecy as to the future of architecture in this country. My own view is that genuine progress is likely to be made only along lines already laid down, by the skilful use of opportunities as they occur in plan and construction, and by the watchful care of all elements in design that pull the same way—namely, in the direction of strength, refinement, and sincerity of statement. Our French colleagues, I am told, deprecate our ventures in monumental Classic, and would urge us to follow the models of Late Gothic or even of Jacobean architecture. I can only suppose that these gentlemen are unacquainted with the work of Wren and Vanbrugh, Hawksmoor, Gibbs, and Chambers. In the work of all these men there is latent a tradition, still unexhausted, still capable of development and application to the problems of modern architecture; and this question of tradition is of the first importance. We ourselves are, I believe, slowly moving towards the only possible standpoint in gradually concentrating on the tradition of English architecture of the eighteenth century, and our French critics seem to me to have shown little wisdom in deserting the splendid legacy of the Gabriel. What can be done by working on the lines of national architecture has been shown in some of the buildings of that accomplished architect, Ludwig Hoffmann, of Berlin; perhaps a little over-accentuated, a little over-strenuous, but, as far as I understand it, stamped with the genuine impress of the traditional architecture of the German States.

Our course then, is clear. We are not to be rushed by the outcries of our critics, or moved to hurry by frantic attacks on architects, made sometimes for reasons quite unconnected with architecture. We should pursue our steady way, strong in our knowledge of the past and in our faith in the future, and in that enthusiasm which is the privilege of creative artists. For this kinship of artists should be the real bond of union between architects, the source of that honourable fellowship without which individual efforts must too often fail. And in concluding my remarks I would urge the value, and indeed the necessity, of this *esprit de corps*. The career of an architect is by no means an easy one. Unforeseen difficulties may arise in his way, and he may need that helping hand which, I hope, will never be refused by his colleagues. In all such cases we should stand by our brethren. Moreover, there are intricate and difficult questions to be determined by the profession in the near future; one in particular which has blocked the way for a generation, and which has for years received the anxious consideration of successive Councils of this Institute. I have every hope that at a near date your Council will be in a position to offer you its considered suggestions for the solution of that question. I will only remind you that such questions can only be settled by pulling together. You will recollect Æsop's fable of the bundle of sticks. It is not to be supposed that any method can be devised which will be wholly acceptable to everybody. But when the solution to which I refer is suggested to you, I feel sure that this *esprit de corps* will have the full scope and bearing that it should have in a great profession such as ours, and that we shall not trust in vain to this same honourable sense of fellowship.

DISCUSSION.

Lord Milner, in moving a vote of thanks to Mr. Blomfield, said he felt himself in a very delicate position, for in the few sentences he would venture to address to them he was conscious of treading among pitfalls. It was no small undertaking to comment even in a most cursory way upon an address so full of controversial points, and especially for an unskilled layman to comment upon them before an audience of experts. Fortunately for him, Mr. Blomfield had covered so wide a field there was a great deal which could be referred

to without touching upon controversial points in architecture. He could not help observing the fact that Mr. Blomfield's life-long devotion to architecture had not prevented him from cultivating some of the other arts—perhaps all, but certainly the art of literary expression. Mr. Blomfield had been rather hard, almost parricidal in fact, about poor literary men. Everyone must have been struck and have admired the lucidity of the sentences and the bravura with which the President had expressed his opinions. It would be easy to believe anyone who told them that in the course of a strenuous life Mr. Blomfield had been engaged in several controversies. If so, he must have given many a doughty blow, though without any touch of acrimony, and in his battles Mr. Blomfield must have always been animated by the highest conception of his art and always fought for its honour and glory. No one who listened to that address could have any doubt about the matter. It was not only for his great achievements as an artist, but also his great belief in the Mistress Art, his great loyalty to it, and for that spirit of good fellowship to other artists, that Mr. Blomfield enjoyed the esteem and the affection of those engaged in the same labours as himself. Any man who did a great service to architecture did a great service to the State. And of all the arts architecture was the one whose welfare was of the most vital importance to the great body of the community. It was to be feared that many people passed through life untouched by any of the other arts except, perhaps, music—and many were untouched by that. It was, however, impossible to escape from architecture; the Mistress Art had got the public in its grip. Whether the experience was pleasant or painful they were always exposed to that influence. Therefore, anything calculated to raise architecture, to keep up its high position and perhaps some day to bring back an accepted standard, was of the greatest importance to the whole community. He had often wished they had in this country something like the *Ædiles* of the Romans. He did not wish to suggest he would put bureaucrats into office to repress individuality. But he did feel that the public were entitled to some protection. Any wise Government which tried such a thing as a Ministry of Fine Arts would do so not with the idea of controlling the arts, but with the idea of giving to artists a better chance of assisting or protecting the public. He would give one humble illustration of his meaning. A recent discussion had been going on about a proposal for the erection by the State of 120,000 cottages all over the country. He himself was an enthusiastic supporter of an increase in the number of cottages, because there was no reform so greatly needed. But here would come in his wished-for *Ædiles*. For it was too terrible to contemplate the possibility that in the pursuit of economy this country should be endowed with 120,000 yellow brick boxes with slate lids. If there was an enormous multiplication of cheap buildings without any sort of public control, it would be a real danger to the beautiful English country. He was prepared to go a long way in this matter. He knew there was a necessity for, and he knew the importance of, economy. But he thought it would be worth while for this wealthy country to spend 30 or 50 per cent. more of the public money, even without a return, if the result was to prevent the English countryside being ruined by the erection of a vast number of small, unsightly, unsuitable buildings. Apart entirely from every other consideration, he thought the beauty of England was partly due to the extraordinary charm of its old mansions and old cottages, and was perhaps unique. These were a national possession, and the few millions spent on their preservation would be, to put it at its very lowest, a very admirable investment. In conclusion, he was sure they would all cordially support him in the proposal to give a very hearty vote of thanks to Mr. Blomfield for a paper so full of interest and suggestion, a paper which would command the highest respect of his fellow-artists, and which was also full of interest and charm for the least experienced of his hearers.

Mr. Cyril Cobb, Chairman of the London County Council, said he had officially to deal with building regulations which, he understood, were a source of very considerable trouble to architects. But the London Building Acts had to be administered. The London County Council had an architect of their own, who advised them on the interesting points connected with the Building Acts. Consequently, it was very difficult for him, before an audience consisting very largely of architects, to put in an appearance at all. He had been brought into connection with their President because Mr. Blomfield had been of very considerable service in a little matter in which it seemed to him that the London County Council had been in something of the position of Lord Milner's *Ædiles*. The Council had asked Mr. Blomfield to

assist them in the difficult work of the negotiations connected with the completion of the Mall to Charing Cross improvement. He felt sure that if Mr. Blomfield had not been a distinguished architect he would have been a distinguished diplomatist, judging by the way he had reconciled the most conflicting and varied interests. He believed they had now, fortunately, reached a solution, which would be an advantage to London from the architectural point of view, and which would give the greatest possible satisfaction to the three bodies concerned, who, with London, would owe a debt to Mr. Blomfield. It therefore gave him the greatest possible pleasure to second the vote of thanks to Mr. Blomfield.

The vote was carried by acclamation.

Mr. Blomfield, in replying, said that Lord Milner had alluded to him as a fighter, while Mr. Cobb had described him as a diplomatist. As a fact, he was a man of peace, and he tried to steer a middle course between the two. Both the speeches had touched upon some extraordinarily interesting things. Lord Milner had touched upon a burning question when he suggested the creation of *Ædiles*—i.e. of men whose business it was to see that the right thing was done. Undoubtedly, also, the question of a Ministry of Fine Arts would soon have to be seriously considered. It was absurd to suppose they could have reasonable cottages which would not be an outrage on the countryside for £110. Lord Milner had rightly pointed out that, after all, the object of every one of them was to do the best possible for architecture, to raise the standard of architecture, and to keep it up to its highest tradition. That was the object of the Royal Institute, and they were trying to make some distinction between the qualified and the unqualified person. He hoped that the proposal shortly to be submitted by their Council would receive their serious and impartial consideration. Out of that would come the solution of the great question as to how they were to keep up the tradition of architecture in this country.

The next meeting of the Royal Institute will be on Monday, November 17, at which Mr. H. V. Lanchester, F.R.I.B.A., will read a paper on "The New Wesleyan Hall." Westminster.

ARCHITECTURAL INLAY.—II.

By J. TAVENOR PERRY.

WE have now to consider the other and, perhaps, more important branch of our subject, which consisted of inlaying one hard substance with another, as of marble in marble or stone in stone; and the prevalence of either of these modes in different countries, depending as they did on the various materials architects found ready to hand and adaptable to the purpose. Thus in Italy and India these inlays almost invariably consisted of marble, while in France the coloured volcanic stones or tiles served the same end, and in England they had to content themselves with the coarser though effective contrasts afforded by flint and stone. In this category we have omitted the inlay of wood by wood or other substances, known as *intarsia*, which was common to all countries; but although this branch of the art is of extreme interest and importance, since it was almost confined to furniture and fittings, ecclesiastical and domestic, it may be omitted from a short study, such as this is, of architectural inlay.

The enormous quantity of marble, porphyry, granite, and alabaster, collected in Rome and its wealthy cities and provinces during the earlier days of the Empire, not only fostered a taste for the rich colouring and brilliant effects produced by such materials, but it introduced a new art-industry in the mosaics, inlays, and veneers employed to cover the walls and floors; and when the Empire had passed away and the quarries whence the marbles had been extracted were forgotten, the vast stores to be found among the ruined palaces and temples supplied generations of marble-masons with the material with which to decorate their Byzantine and Romanesque churches.

In its earliest appearance the art of inlay is associated with mosaic in such a way as to be almost inseparable from it; and we must look for it in connection with the decorative marble work known as *opus sectile*. Of this perhaps the earliest known example is the incised slab showing a tiger on the back of a calf which once adorned the palace of Junius Bassus on the Esquiline, erected in the fourth century, part of which was converted into the church known as S. Andrea Catabarbari; and when this was destroyed the slab was removed to its present

position in San Antonio Abate. This work consists of shaped pieces of coloured marbles set together to form a picture having the shade lines produced by the inlay of narrow strips of black marble. At Sta. Sabina on the Aventine, San Vitale, Ravenna, and the Duomo of Parenzo in Istria, are examples of the same work of the fifth century but purely geometrical in design, where the incised lines are filled in with white and other marbles, and, in the case of Parenzo, also with onyx and mother-of-pearl. This mode of marble-working gradually died out in Italy, as tempera and fresco painting, together with pictorial mosaics, began to be employed for the decoration of interiors.

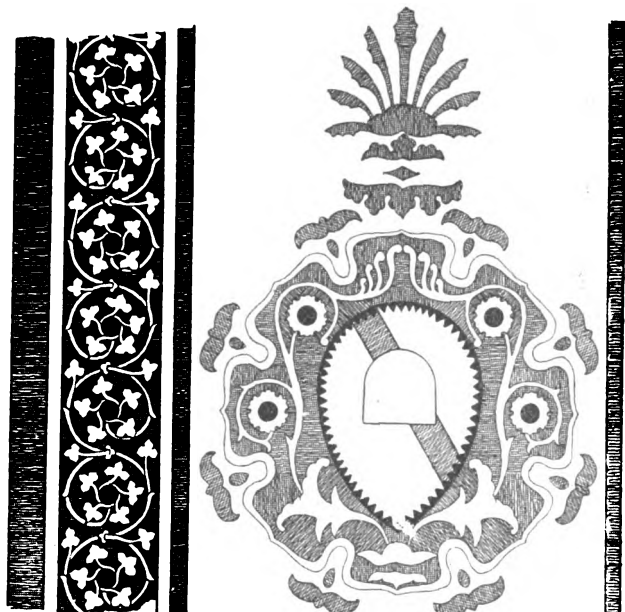
It may be mentioned here, so as not to interfere with the continuity of our account of marble inlay on which we are entering, that the work known as *opus sectile* was revived in the fourteenth century and carried on for two hundred years at Siena, where the great pavement contains some of the most beautiful figure-work ever executed by such means. The same work was also employed during the Renaissance in South Italy and was carried to a degree of richness unknown elsewhere; and it perhaps reached its culmination in the pavement of San Martino, Naples, the work of Cosimo Fonsaga in the middle of the eighteenth century. (See Plate.) An attempt to revive its use was made by Baron Triqueti in the latter half of the last century in the Albert Memorial Chapel at Windsor with not very satisfactory results.

Marble inlays in brickwork appeared externally on the Roman campanili from the ninth century onward in the form of circular and square plaques, sometimes arranged in the shape of crosses, and are generally in porphyry. In place of the marbles, however, sometimes occur *bacini* or roundels of majolica in bright colours with an iridescent glaze. On the tower of Sta. Francesca Romana may be seen all these varieties, the *bacini* being painted with clearly distinguishable patterns. The circular porphyry discs were cut from old columns and were similar to those forming the eyes of the mosaic known as *opus alexandrinum*, which presently superseded all inlay.

The use of marble inlay for architectural work had practically died out when it was once more revived in Florence early in the twelfth century on the façade of San Miniato, where it appears combined with the cement inlays already described. This marble inlay is also employed within the church, and on the chancel screen and ambone, erected about 1250, much more elaborated and associated with rich carving. It was, however, more than

and it was carried on at the public expense during the rule of the Grand Dukes.

The materials used in this work were chiefly black, white, red, and green, the colours being of a low tone, and



FROM A SLAB TOMB IN STA. CROCE FLORENCE DATED 1472

FIG. 2.

neither the blackness nor the whiteness absolute. Besides this, the white marble never received a very high polish, and down to the fifteenth century, or even later, the masons were content with a surface worked by the chisel or, at most, with such polish as sand rubbing would produce. Thus the appearance of such inlaid surfaces was soft and harmoniously rich without at any time suggesting garishness by violent contrasts.

(To be continued.)

CHURCH PLATE.*

(Concluded from last week.)

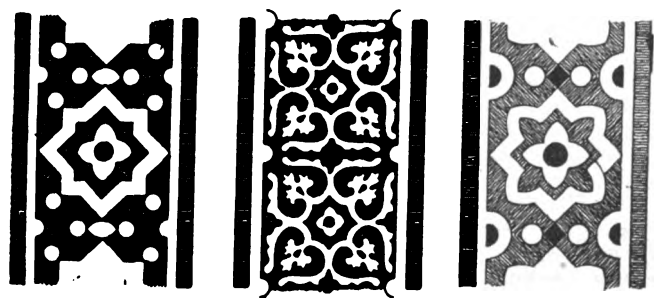
HAVING sketched the history of Communion plate before the Reformation, we must now pass on to say a few words about that very disturbing period of English history.

I would draw your attention to the grand display of plate which might have been seen in our abbeys, cathedrals, and parish churches in the Middle Ages. Even in the smaller churches there would always be two or more chalices, each with its paten, generally gilt or parcel gilt, and often enriched with precious stones. Always two or more candlesticks, crosses, chrysmatories, pyxes, and censers—the latter often in the form of ships. Flagons do not seem to have been used, but frequent mention is made of cruets.

In Pre-Reformation times, as now, church plate was almost always the gift of an individual, and occasionally one comes across a bequest in a mediæval will or some other record of such a gift. Thus, in 1246, King Henry III. gave a chalice for the church of All Saints, and smaller vessels for the other parish churches in the town of Northampton. The Rev. Thos. Lufwyck, Rector of Burton Noveray, Co. Leicester, in 1390, by his will, gave to Lufwyck, or Lowick Church in Northamptonshire, his "best silver zone to make a chalice." Edward Brudenell, of Deene, in Northamptonshire, by his will dated June 21, 1425, bequeathed to St. John's Hospital, Aynho, in the same county, his missal and a chalice. William Holt, of East Carlton, Northamptonshire, bequeathed by his will dated August 24, 1497, "To the house of the Abbey of Land all my plate there to remayne and abyde for ever. . . . I restore to the chappell of Holtt a chalys of silver."

I do not propose to treat the period of the Reformation at any length, as this paper only professes to deal with the fashion and design of Communion plate. Suffice it to say that after the year 1534 the work of spoliation commenced, and has ever since been going on merrily. First came Henry VIII., who in 1539-40 suppressed all religious houses throughout the realm, and, of course, appropriated their possessions; at the same time he appears to have

* A Paper read on October 16, by Mr. Christopher A. Markham, F.S.A., before the Society of Architects.



FROM THE DUOMO FLORENCE

FIG. 1.

a hundred years later before the marble decorations of the Duomo were begun, as there had been great delay in the structural works, the design for the nave windows not being decided upon until 1358, nor any general idea of the decoration settled before 1366; and it seems probable that it was not until 1382 that the then master of the works, Benci di Cione, actually began the marble revetments. How far the decoration of the Campanile had then proceeded cannot now be determined, but as the same rich ornaments occur in it as on the portals and windows of the Cathedral, the works must be contemporaneous and belong to the end of the fourteenth or beginning of the fifteenth century (fig. 1).

This mixture of marble revetment and inlay became characteristic of Florentine work, and it appears on the Baptistery, Sta. Maria Novella, and other churches; while delicate variations are to be found of it among the flat pavement tombs of the fifteenth and sixteenth centuries, particularly those of Sta. Croce (fig. 2). The manufacture of inlaid marble furniture and smaller objects became a staple of Florence under the name of *pietre commessi*,

taken many of the silver vessels from the parish churches, instructing his Commissioners to leave only sufficient for the use of the church.

As showing the completeness of the sweep made at the time of the Reformation, I may mention that in the 330 parish churches in Northamptonshire there is but a single piece of mediæval plate. This is a little silver gilt paten five inches in diameter of the approximate date of 1330.

When incumbents and churchwardens found how the matter was going they also began to dispose of their church plate. Between the years 1547 and 1552 great numbers of churches were represented as having been broken into and the plate stolen. No doubt, in many cases, this was a pretence, to account for the disappearance of the silver which had been thus alienated.

In 1552, when King Edward gave orders to make an inventory of the church goods and seize certain for his use, the Commissioners were still instructed to leave "one, two, or more chalices or cuppes according to the multitude of the people." The inventories then made are still extant for many parts of the country, and a number of these have been printed in the various County Histories of Church Plate. At this time the King also ordered that "all monuments of feigned miracles, pilgrimages, idolatry and superstition" were to be destroyed; and all chalices coming under this clause were melted up and fashioned into cups.

It is supposed that, about the year 1562, some general Order was issued in London as to the shape of these cups; for almost all the cups in England made between 1562 and 1570, or a little later, are practically identical in their outline, though they all vary in minor points. No such Order has been found, but unless some such regulation was passed, it is impossible to account for extraordinary similarity between the cups of this period, whether found in Gloucestershire or Cheshire, in Suffolk or Monmouth. It appears that this is a similar matter to the vexed question of Low Side Windows. It seems to me that a general Order was also issued during the reign of Henry VIII., directing that all such windows should be walled up; and that under this Order Low Side Windows from one end of England to the other were closed by brick or stone work. But here again no such Order has been found.

I should like to mention, in passing, that at the present time it is quite improper to speak of a "chalice," the correct word being "cup." Indeed, the word used in the Book of Common Prayer is invariably "cup," except in one side note where the priest is "to lay his hand upon every vessel (be it Chalice or Flagon) in which there is any Wine to be consecrated." This, I would suggest, is to meet the case of a parish which was the possessor of a mediæval chalice.

It must be understood that in the following remarks I am dealing more with the church plate of Northamptonshire than any other county, but in any case this county is quite a typical one, except with regard to Pre-Reformation plate, of which it only possesses the solitary paten previously mentioned.

At Clapton, in Northamptonshire, there is a very fine silver gilt cup and cover paten, which, as it is the earliest, is also the most beautiful in the county. This was made in the second year of the reign of Edward VI., and is probably the second earliest Post-Reformation cup in England.

At Great Houghton there is another cup also made in the reign of Edward, though five years later than that at Clapton. This is more like a regular Elizabethan type which is found from one end of England to the other. The lines and ornamentation of this cup are very good.

There are two cups, somewhat like that last described, at Clipston and Kislingbury, which were made about the year 1562. They are of hammered metal, and were, perhaps, by a local maker, as they bear only the maker's mark.

Then come a splendid series of cups, each with its cover paten, made between the years 1568 and 1570, of which there are 126 in the county of Northamptonshire. These are all much alike, but no two are identical, the form and ornamentation differing in each, and some of them have the stem without a knot. The next series are standing cups with covers, which were not intended to be used as patens, of which we have several good examples. The Corby cup is entirely silver gilt and richly ornamented, and is of beautiful design and workmanship; the Furtho cup is also gilt, and is covered with a very curious ornament.

There are only two beakers in the county. That at Upton

is probably of German manufacture, and, curiously enough, the other is at the adjoining parish of Sutton, and was probably made by a local workman on the pattern of that at Upton.

At Cottesbrook there is a cup which was made in 1635, and is in the form of a pre-Reformation chalice. This has a small conical bowl, a tall stem with knot in the centre, both with six sides, and a spreading six-pointed foot. Altogether a very rare shape for that period.

In the middle of the seventeenth century another type of cup was introduced of heavier design, with bowls of great capacity and clumsy form, thick stems, and plain feet. The vessels now at Loddington, which were made in 1671, were perhaps originally domestic, and afterwards given to the church; one is like a small porringer or candle cup with two handles, and the other like a mayer. The curious little vessel at Plumpton, made in 1694, might serve either as cup or paten, but is now used as the latter; it is of quaint design.

A few good pieces of Communion plate were made early in the eighteenth century by that celebrated artist, Paul de Lanerie; and after that time the forms of the patens, cups, and flagons degenerated very much, and nothing can be less artistic than the vessels made in the eighteenth and nineteenth centuries.

Flagons do not appear to be earlier than the beginning of the seventeenth century. The first made in Northamptonshire was hall marked in 1605, and is at Great Brington, and it is quite plain. The very beautiful flagon at Easton Neston was made in 1735; it is entirely gilt, and is a good specimen of the work of Paul de Lanerie. Many of the flagons of this period are of great size, and those at Peterborough Cathedral weigh over one hundred ounces each.

Alms dishes are not in general of much interest, though sometimes they are of fine design. At Peterborough Cathedral there is a very beautiful alms dish, silver gilt, 19½ inches in diameter, which was made about 1650, and weighs 54 ounces. It is ornamented round the edge with fruit and flowers, representing Peace and Plenty in repoussé work. At Finedon there is an alms dish 2 inches high and 14½ inches in diameter, which is composed of about 350 pieces of mother-o'-pearl, which are curved and riveted together in a very beautiful and accurate manner. This is probably of foreign workmanship.

Of christening bowls we find a few at different villages. For instance, at Finedon there is a christening bowl which, like the alms dish at the same place, is composed of mother-o'-pearl, the sides being formed by fourteen curved sections, each of which is a shell; the whole is riveted together so accurately that the bowl will hold water.

In Northamptonshire there are some half-dozen strainer spoons, the greater number of which are modern and unimportant, but that at Dallington is an Apostle spoon, which was made at York in 1597.

I should say a few words about pewter vessels, of which there is a great quantity all over England, much of which still continues in use. In Northamptonshire there are some sixty-six flagons of pewter; the earliest dated example is that at Werrington, which is inscribed 1609. Some of these flagons are large and handsome, some are quite plain, and some battered out of all knowledge. There are several pewter christening bowls, and also one pair of pewter candlesticks.

Several hundreds of plates still remain, of all sorts, sizes, and shapes, most of which have received considerable damage during their long years of service. Some of these have been used as patens, the upper surfaces having been much cut, while others have been used as alms dishes.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

MR. G. SALWAY NICOL, A.R.I.B.A., delivered his Presidential address at a meeting of the Birmingham Architectural Association, held in the Exchange Buildings, New Street, on Friday evening.

The meeting opened with the submission and adoption of the accounts for the past year.

A PRESENTATION.

Subsequently a presentation was made on his retirement to Mr. Freeman Smith, who has been associated with the work of the Association and the architectural classes at the School of Art for a period of more than thirty years. The gift consisted of an illuminated address and cheque, and was handed to Mr. Freeman Smith by the President, who said Mr. Smith's name appeared very early in the Association's

green book, alongside the name of the elder Bateman, as one of the senior officers of the Society, and in those early days he took a very active part in the secretaryship and the run of the meetings. But particularly they were indebted to Mr. Smith for his work as an instructor in the Birmingham School of Art in connection with the classes of architecture.

The Headmaster of the School of Art expressed the pleasure it afforded him to be present, and joined in the regret of the Association at the retirement of Mr. Smith.

Mr. Freeman Smith, in reply, said that one of the great agents of his progress in life was coming into contact with one of the most remarkable men of the age, Professor A. W. Bickerton, who first taught him science. Professor Bickerton was only there a year, but he studied seventeen sciences in three months, and drew the largest grant that was ever drawn from the Government by a science teacher.

PRESIDENTIAL ADDRESS.

Mr. G. Salway Nicol, at the outset of his address, said he found it was usual to spend quite a long time framing sentences emphasising the virtues of the previous Presidents and depreciating one's own ability to fill such a post. He was going to ask them to take that as read, and would content himself with thanking them sincerely for the honour conferred on him, and promising to do his best during the coming session, with the assistance of so many past Presidents, who, he felt sure, would support him, to continue, if not to increase, the value and influence of the Association. He conceived the purpose of a Presidential address to be to provide an occasion to take stock of their position, to remind themselves of the objects for which they met, and to look round to find out how they could advance slowly but surely the cause of architecture. It might be helpful, he thought, to speak of the most important of all the principles that governed their work—he meant proportion; and, taking it in its very broadest sense, architecture could be justly described as the art of proportion. He did not mean merely the harmony which could be produced by the juxtaposition of such dimensions as from custom they found to be pleasing, but the sense of proportion which demanded that the treatment of every problem should be suitable and fitting to the needs which required to be satisfied. An architect should cultivate the power and habit of looking on things from a distance, and seeing that the big elements of a scheme were in proper harmony. They would lack the sense of proportion if in their studies they cared only for the refinement of their mouldings and neglected the more important questions of massing, texture, and colour. They lacked the sense of proportion if in their work they gave undue emphasis to any building in its relation to its neighbours or neglected to express in an important building the dignity, solemnity, or majesty which its nature rightly demanded. The designer who by his use of architectural forms gave undue prominence to the little elements of his problem would never make fine architecture, for he had missed the first essential of their art—the sense of proportion. The reason so many small and unimportant buildings offended their taste was that they possessed features which did not rightly belong to them. A small country inn frequented by farm labourers should not have a cheap edition of a Corinthian portico for its entrance. Neither should a large building like their Council House, for instance, have its window boxes trimmed with rustic bark tacked on, a treatment suitable for a country cottage. These should have been of cast lead and of a design consistent with the dignity of the scheme if this principle of proportion were properly observed.

Now, let them look into the opportunities they had as an Association of influencing public opinion, and let them see if their energies were being expended proportionately. All architecture, good or bad, was the expression of the character and aspirations of the people who produced it; it was not merely due to the intelligence of the designer, but depended far more on public taste. In Birmingham they had, no doubt, many fine buildings which were far in advance of the general taste; also possibly a few which were behind it, but generally the architecture of a city depended upon, and was consistent with, the ideas of the man in the street. It had been well said that the man who first quoted a fine sentence was second only to the man who wrote it. In the same way the client who obtained a fine building was second only to the architect, as he did so because he could select his architect well, and was wise enough to allow him, when selected, to exercise his powers in the best way. If by accident it happened, as sometimes it did, that a fine scheme was adopted, unless the promoters could appreciate it it would probably be completely spoilt by ignorant interference during its erection. If they considered architecture

at a sufficient distance of time, the fact of it being a complete expression of the character of the people generally was more evident. He suggested it was not sufficient for them as an Association to train architects and designers and trust to luck to them being employed by an indifferent public, but that it was their duty to take every opportunity to instruct public opinion in the many great advantages to the community and the individual if the mistress art was allowed to progress in their midst. In the first place, they must combat the idea that architecture consisted of the addition of expensive trimmings to a building which would be as useful and serve its purpose as well without them. Architecture was nothing of the sort. A fine building must in its conception and design start with satisfying in the very best manner the use to which it was to be put, and the balance, order, and rhythm with which this was effected tended rather to greater economy than to extravagance. Some of the finest buildings in their city were those where the greatest restraint had been exercised in the use of ornamental features. These truths were so clear to them that they were apt to consider them common knowledge. The amount of ignorance of architecture in cities like Birmingham was appalling, and was a continual block to all their endeavours.

"Now you will, I think, agree," proceeded Mr. Nicol, "that we have a few fine buildings in our city, and never have we had a larger number of architects, well trained and capable of producing fine work. All that is wanted is a section of the public who care for architecture to assist us in its production. It is not proportionate for us to continually study and strive to realise an ideal in face of such apathy without an effort to remove it. Now I think it is our duty, as we call our Society the Birmingham Architectural Association, to act up to this important title. If we were merely a group of students meeting for our own amusement, a more modest name would suffice. We pretend, however, to be an important learned society, and profess to exist for the furtherance of the art of architecture in a large district. Our own sense of proportion is therefore very defective if we exist as a students' society merely. We should speak with no indefinite voice on all matters concerning architecture in our city. We should have an ideal, and a definite scheme of the means to be taken to carry it out, for gradually making Birmingham a city to be proud of, whereas we are all thoroughly ashamed of it. The lay-out of our streets and the position of the important buildings is accidental and generally a muddle. Consider for a moment how unsatisfactory is the small square at the back of the Town Hall. Some of the buildings themselves are fine, but what a total disregard of any relation one to another. Again, Stephenson's Place, the approach to an important railway station, is not treated as such, and at this point again the buildings have no relation to one another. The other end of Corporation Street is a point of intersection of many important roads. How terrible it all is! Any second-rate French city would not tolerate such a chaos of freedom and license. The City Council, I feel sure, are prepared to do what they can to help us. They have given us at the School of Art the start of an excellent School of Architecture which, when it takes its proper place, will have a great influence for good in our architecture, but it is not that there is so much wrong with the buildings individually as the absence of any relation one to another or the position they occupy. The City Council are the only people who can deal with this. They should prepare a town plan for the centre of the city and obtain powers to carry it out gradually as opportunity serves. Many excellent suggestions from architects and others have been expressed at various times. These should gradually be marked on a plan and some day carried out. This method is generally adopted on the Continent with great success. We find there, in the midst of disappearing slums, the corner of some fine square, and after a few years we notice that a further section has been accomplished, and in time, when we visit the place again, a fine scheme has taken the place of the previous chaos. Now this is not done at a sacrifice of accommodation or by elaborate and extravagant façades or monuments, but simply by a common-sense and proportional arrangement of buildings, serving useful purposes, and, at the same time, instead of shouting each other down with vulgar pretensions, obeying the law of proportion and decency. Is it impossible to practise such methods as these in our city, which is so wealthy and progressive that large sections of it are rebuilt in every decade? Architects cannot possibly advance in this direction alone. They must have the support and co-operation of the general public,

and it is because of this that our city is an expression of the character and intelligence of the inhabitants. In walking through our streets we get the impression that the chief motive of the people who work in them is to turn everything into a means of getting rich quick, and then retiring to some decent place to enjoy the result of their labours. Is it not better to live and work in decent surroundings? We spend a lot of time and money in cultivating music, literature, and the minor arts such as painting, but the mistress art, which gives so much pleasure to so large a number of people, and in so lasting a manner, is practically entirely neglected by the general community, and only occasionally forced on them by some enthusiast."

Fortunately, however, people were rapidly awakening to the important influence of environment on the development of fine character and in producing happiness. As a result of this, said the President, they had the Town Planning Act, for which they should all be profoundly thankful, for it had made many fine things possible. Town planning was, however, nothing new. It was as old as architecture; in fact, it was a part of architecture, and a very important part. The proper laying-out of building areas had always received careful attention by the great peoples of history, and in all instances architectural considerations had had proper attention. Unfortunately in many of the schemes now being prepared this all-important element was entirely neglected, in spite of the fact that it formed an integral part of the Act itself. It was supposed that because much of the work was done by the road surveyors and the estate agents that architectural knowledge was not necessary. No big building scheme was the work of the architect alone. Skilled men in various branches of engineering and the crafts were employed, and all worked under the guidance of the architect, and so a completely harmonious result was achieved, for it was the architect's special province, as he had said, to look at the big elements in a scheme and exercise general control. The preparation of a town plan was essentially an architect's matter, working in conjunction with the surveyor and engineer, whose function should be to supply him with the information of the matters they specialised in. The working of this most important Act was, of course, in its infancy, and in time would outgrow many of the troubles that now beset it, and it was pleasant to think that in Birmingham they might owe many of such improvements to a committee of the City Council. While dealing with civic design in its larger aspect, he could not help but refer to the unnatural divorce between architecture and engineering. In hardly any great civilisation in the past had this been so. Take, for instance, the great engineering works of the Romans. Their aqueducts, gates, and walls were all sound, both as engineering and as architecture. Especially was this so in the fine example called the Pont du Garde, near Nîmes, in the South of France, a construction of very great beauty, perfect engineering, and absolute economy. The great constructional problems of the Byzantine and Gothic ages were also solved by a proper balance of engineering and architecture. If at the present day they looked abroad they found that in great constructions such as bridges, railway stations, and the like an architect was always associated with the engineer, and as a consequence they had much finer work. "We have only to compare with them," proceeded Mr. Nicol, "the treatment of such subjects in this country to realise how far we have been left behind in consequence of this divorce. In England the railway stations are huge constructions occupying important positions in our cities, generally designed with a supreme contempt for any sense of proportion or architectural fitness, and are a national disgrace. Even America can show us how to deal with such problems—for instance, the new station in New York—while their project for a huge bridge is an artistic as well as a useful asset."

Proceeding to discuss the use of sculpture in the open-air, Mr. Nicol said that in Birmingham they had no reason to be satisfied with what they possessed in that direction—a few fine statues, a greater number of indifferent ones, but all, without exception, dotted about the city like chessmen who had got lost. Any sculpture in the open air in a town must, as a first essential, be carefully placed in relation to the surrounding buildings. How very much they had to learn from France in that direction! If he suggested that they should have much more fine sculpture out of doors he would be met with the objection that they could not afford it. Could not afford it, indeed! Were

they worse off than those nations who could? Was it not rather a lack of proportion in the expenditure of public monies on art that laid out tens, nay, hundreds of thousands of pounds in the purchase of old masters at fancy prices, to be placed in galleries enjoyed only by the connoisseur and student, rather than a reasonable expenditure on some fine sculpture in connection with their public buildings where the enjoyment and refining influence of such would apply to every passer-by? In conclusion, Mr. Nicol touched on the subject of the union of the arts—architecture, sculpture, and painting—a theme, he said, in which they were all extremely interested at the present time. Leading modern architects were working hard to increase the union, for by such a combination only could they attain the finest artistic expression. The mistress art could stand alone without the attention of her hand-maidens, but only in her plainest and severest mood. How rare it was to find examples of work where the three arts had been wedded into a whole, assisting each other with perfect harmony! It was not surprising, then, that they had to look far in Birmingham for a specimen of sculpture forming a fine scheme with its architectural setting, or for a piece of good decorative painting enriching an equally beautiful building. But while there was little they should be very glad there was any at all, and remember that what had been done could be done again and be done better.

A hearty vote of thanks was passed to the President for his address, on the motion of Mr. Ball; and Mr. Harrison, Mr. Swan, the headmaster of the Art School, and others subsequently took part in an interesting discussion.

NATIONAL REGISTRATION OF PLUMBERS AT GLASGOW.

ON Friday, October 10, a public meeting was held in the Royal Technical College, at which an address on "The Work and Responsibility of the Plumber in Modern Times" was delivered by Mr. W. D. Carøe, M.A., F.S.A., architect to the Ecclesiastical Commissioners and Master of the Worshipful Company of Plumbers.

Dr. Robert Crawford presided, supported by Mr. H. D. Searles-Wood, F.R.I.B.A., London; Bailie Dr. McConnell, Convener of Health Committee of Glasgow Corporation; Mr. J. R. Sutherland, M.Inst.C.E., Chief Engineer, Glasgow Corporation Water Works, President of the Local Council; representatives of architectural and other bodies and of master and operative plumbers.

The large hall was well filled, and, in the course of his address, Mr. Carøe said that something more than registration of plumbers was needed to ensure complete efficiency. Something was required to fix responsibility if only in order to assert proudly the skill and efficiency of the workman. He advocated a system of marking the work done, so that each man's work might be identified by his own registered number. Therein they had an effective method of differentiating between registered and unregistered craftsmen. It would be a sufficient guarantee of the soundness of the work.

Mr. Carøe said the work of the plumber had vastly increased in quantity and complexity in later days, and his responsibility had increased proportionately. The plumber craftsman was differentiated from other workers in the building trades by the fact that his occupation was directly scientific. Plumbing, with all the complications of to-day, was not merely a craft, it was a science. He wished, therefore, to urge upon them the necessity of setting aside their petty disputes or differences and concentrating their attention on the one high aim of lifting this honourable and highly responsible handicraft upon the true pedestal of respect from all men, as its importance deserved.

Under this system, even with equally good craftsmen, the registered man could say for all time "That is my work; I did it and rejoice in it." The other man took his place only with the crowd, and he had no further interest or identification with his work. The system which he advocated was not to be a charge upon the operatives' wages or time, while both workmen and employers shared in the benefit. To sum up, Mr. Carøe said he desired (1) that the craftsmen should claim the privileges of the craft in which they were employed and qualify for registration; (2) they required to press in all quarters to get architects and public authorities to employ registered plumbers by preference; (3) to get the system of marking adopted in all public and private works; (4) to improve

their funds so as to employ a paid organiser, who would visit the various centres in turn and assist local secretaries in their work; (5) to impress on water authorities that authorised plumbers were not necessarily qualified plumbers, but that registered plumbers were; (6) to encourage the joint committee on water regulations in their work; (7) to impress on local educational authorities the need for their providing technical and practical instruction in harmony with the registration system; and (8) to encourage the system of apprenticeship.

On the motion of Bailie Dr. McConnell, a hearty vote of thanks was accorded to Mr. Carøe, following which Mr. D. W. Kemp, of the Edinburgh Local Council, gave some interesting particulars and lantern illustrations of marks used by masons, gold and silversmiths, and other tradesmen from the past ages to the present time, and appropriately linking up the mark as applied to the work of registered plumbers.

Mr. J. R. Sutherland moved a vote of thanks to Mr. Kemp, and with a vote of thanks to Dr. Crawford, who briefly replied, the meeting was brought to a close.

On Saturday the representatives paid a visit to the cathedral for the purpose of viewing the new copper roof, and were met by Mr. A. F. Wilson, master plumber of Messrs. Steel & Wilson, Washington Street, Glasgow, who gave an interesting explanation of the work.

This roof was originally covered with lead on the choir, nave, transepts and choir aisle, some of the cast sheets on portion of south transept bearing a date 1734 raised on same. In the nave portion the lead had been renewed and milled lead had been used; this had expanded to a greater extent than the cast lead, and in places overlapped the gutters by about four inches.

The weight of lead was blamed for forcing down the roof and spreading the walls from the perpendicular. The fault, however, must be attributed in another direction. The timber struts, which were cut from the Luss Forest about the year 1279, and had been used, with the permission of Bishop Wishart, one of the builders of this cathedral, by the Scots as battering rams at the battle of Stirling, had become decayed or destroyed.

There is no doubt that it was to take the weight off the walls that the Government architect, Mr. Oldrieve, decided, when renewing the timbers of the roof, that copper should be used in the place of lead. The copper under contract was to be 23 B.W.G. for roof and 20 B.W.G. for gutters, and was weighed and tested for impurities as the work proceeded. Some of the sheets tested showed as much as 99.84 of pure copper. Such pure copper was a great help in the bending and setting process, and in all there was used about 1,500 sheets with an area of 42,772 square feet and a total weight of about four tons.

The lead taken from the old roof weighed about 180 tons. Plumbers were employed in preparing and fixing the copper, a light sheet-copper worker being employed to perform the brazing at jointing in gutters and down pipes, no soft solder being allowed or used except in soldering the overflow pipes from gutter boxes. Some of the brazings or hard solder joints were 3 ft. in length, and the operation was performed on an ordinary bellows fire. Each gutter was tested by filling same with water before putting into position in case of leakage. The copper bays were fixed by means of latched pieces or tacks 6 in. by 2 in., fixed every 1 ft. 6 in., screwed under the battens with 3 in. copper screws, and clinked into sheets and rolls. By this means there was not a single nail hole in any sheet.

The work was started on the choir aisle south side roof on November 18, 1910, and finished on the nave roof on October 18, 1912, or in all about two years, and the contractors were fortunate in having the same plumbers to carry out the job from start to finish.

A very cordial vote of thanks was accorded Mr. Wilson for his interesting explanation, and the party then proceeded to the Royal Technical College, where the proceedings of the Seventh Annual Meeting of the General Council for the National Registration of Plumbers were conducted, under the presidency of Dr. Robert Crawford, LL.D.

Resolutions bearing upon the report of the Managing Committee were passed unanimously as follows:—

"That the General Council for the National Registration of Plumbers, assembled in the Royal Technical College, Glasgow, on October 11, 1913, record their appreciation of the important service rendered to the objects of the Council by the Local Council for the North of England offering a 'Merit Shield' for excellency in plumber's workmanship, to be competed for annually by the students

attending the plumbing classes held in the North of England. This offer is the first of the kind in the history of the Registration movement, and the Council feel it is calculated to stimulate emulation in plumbers' craftsmanship among the rising generation of plumbers, and encourage their attendance at the plumbing classes provided by the educational authorities for the purpose of enabling plumbers to reach that advancing standard of qualification which it is the object of the Registration system to secure in the best interests of the whole body of plumbers and the public. The Council further record the pleasing fact that Mr. J. B. Wilkinson, R.P., Master Plumber of Sunderland, a member of the General Council and a member of the Worshipful Company of Plumbers, has generously defrayed the cost of the 'Shield' and incidental expenses, an act entitling him to general gratitude and greatly enhancing interest in the 'Shield' to the present and future generations of plumbers."

"That the General Council for the National Registration of Plumbers, assembled in the Royal Technical College, Glasgow, on October 11, 1913, heartily approve the steps taken by the Managing Committee with a view to bringing the system of marking the work of registered plumbers more closely to the notice of the trade and of the official and professional bodies concerned in the specification and regulation of plumbers' work. The Council are of the opinion that much advantage would be derived by the public if the work of registered plumbers were marked in all cases to distinguish the identity of the master plumber undertaking the work and the operative plumber executing it. And the secretary is hereby directed to issue copies of this resolution for general purposes."

"That the General Council for the National Registration of Plumbers, assembled in the Royal Technical College, Glasgow, on October 11, 1913, record their appreciation of the great service rendered to the plumbers' registration movement by the Incorporated Sanitary Association of Scotland passing a unanimous resolution expressing their approval of the movement for the training, examination and national registration of qualified plumbers as calculated to advance the sanitary condition of dwellings by securing the efficiency of their drainage and plumbing work, and so to promote the public health and the safety of property. The Council order that copies of the resolution of the Incorporated Sanitary Association of Scotland, as passed by that body, be forwarded with a suitable covering letter, signed by the chairman of the Council, to all the Sanitary Authorities of the United Kingdom."

The election of the members of the General Council to serve on the Managing Committee for the ensuing year resulted as follows: President, Mr. Robert Crawford, LL.D. (Glasgow); Chairman, H. D. Searles-Wood; Public Representatives, Mr. D. W. Kemp (Leith), Mr. Archibald Craig (Glasgow), and Alderman Coe (Bradford); Master Plumbers, Alderman Braithwaite (Leeds), Mr. Charles Hegney (Glasgow), Mr. Thomas Hill (Bradford), Mr. A. E. Wilcockson (Manchester), Mr. J. B. Wilkinson (Sunderland), and Mr. John Knight (London); Operatives, Mr. Francis McCulloch (Glasgow), Mr. Griffiths (Liverpool), Mr. A. E. Hudson (Cheltenham), Mr. G. R. Manser (London), Mr. W. J. Smith (Newcastle), Mr. W. J. Harvis (London); and Secretary, Mr. W. H. M. Smeaton (London).

At the termination of the proceedings of the General Council, a visit to the plumbing workshops of the Royal Technical College was made, and proved very interesting.

In the afternoon the General Council were entertained to luncheon by the Lord Provost and Corporation of Glasgow in the Banqueting Hall of the City Chambers.

Lord Provost Stevenson presided, and the company numbered over 300. Among those who accepted invitations were Mr. H. D. Searles-Wood, Dr. Robert Crawford, Bailie Paxton, Bailie Mason, Bailie Stark Brown, Bailie McConnell, Deacon Convener Beattie, Mr. F. W. Raynes, Dr. Henry Dyer, Mr. John Keppie, Mr. Archibald Craig, Dr. J. G. Kerr, Colonel Bennett, Mr. J. S. Samuel, Mr. W. D. Carøe, Bailie J. W. Stewart, Bailie Smith, Bailie Ure, Professor Claister, Bailie D. Graham, Bailie O'Brien, Bailie Morton, Mr. Archibald Watson, River Bailie Nicol, Mr. H. E. Stockdale, ex-Bailie W. F. Anderson, Mr. Alexander Skirving, Dr. C. R. McBean, Mr. J. R. Sutherland, Mr. R. Alexander Ogg.

The Lord Provost, in proposing "The National Registration of Plumbers," said that the object of the registration movement was to elevate by training in workmanship the status of the plumbers' craft, to give every com-

petent plumber a diploma, which would be a certificate of his efficiency, and by these means to assist in protecting public health. That was an ideal that invested the movement with special importance in the view of every municipal government in the country. The movement had nothing to do with trade disputes, and perhaps that was wise. It was entirely a movement for education and qualification. He had suggested to their chairman that the most direct and simplest way of enforcing registration was to prevent the plumber who could not add "R.P." to his name from entering a house to do plumber's work; but probably the same purpose could be served equally well if every person was made aware that the plumber who was able to tell a householder that he was an "R.P." might safely be entrusted with work. He threw out that suggestion. If it was adopted many men would not hesitate to become registered, and within another generation probably all the plumbers in the country would be members of their Society.

Mr. H. D. Searles-Wood, chairman of the Managing Committee, in reply, said the recognition of their movement by such municipalities as Glasgow was the greatest help their Society could possibly have. That recognition drew public attention to the movement in a way that they were not able to draw it by any other means. The success of the movement for the registration of plumbers depended on the desire of the public to have registered plumbers. When there was a general demand on the part of the public for registration, then the registered plumber would be there to carry out the work. They had tried to get an Act of Parliament passed making it compulsory that all plumbers should bear registration, but unfortunately, up to the present time, they had not been able to get Parliament to do that. He hoped, however, that the time would come when they would be able to carry a Registration Bill in the House. Their Conference in Glasgow, he concluded, had been one of the most successful which they had had since the inauguration of the movement.

Mr. W. D. Caroe, Master of the Worshipful Company of Plumbers, proposed "The Corporation of Glasgow," and the Lord Provost replied.

Dr. Crawford submitted the toast of "The Lord Provost," and the Lord Provost briefly replied.

THE INSTITUTION OF CIVIL ENGINEERS.

THE opening meeting of the above Society was held on Tuesday, November 4, at their new premises in Great George Street.

Mr. Anthony George Lyster, M.Eng., delivered his presidential address, which dealt with "The Constitution of Port Authorities as affecting the organisation and development of Ports."

Before delivering his address Mr. Lyster alluded to one or two important matters appertaining to the general affairs of the Institution.

All those who have followed recent events in connection with the Institution must have realised, he said, how great its activities have been in the immediate past. This applies not so much to the ordinary routine work, which is steadily assuming larger proportions, but to the special duties which it has from time to time set itself to accomplish.

Chief amongst these may be mentioned the labours of the Reinforced Concrete Committee.

This committee issued a preliminary report in 1910; it has now, however, made considerable further progress, and has finished one stage of its experimental work. Its second report, recently adopted by the Council, deals especially with these investigations, and with the mathematical considerations involved in the current rules and formulas applying to this class of construction. It has therefore made a very important advance in its work, and one which should have great value for engineers who are interested in this branch of the profession, which, without doubt, has a very extended future before it.

Members would also have in their minds the correspondence which has been carried on during the past two years as to the adoption by the Government, for engineers in the public services, of a standard of qualifications not inferior to that required by the Institution. As will be seen from the correspondence published in the report of the Council for the session ending in April last, the Prime Minister is entirely sympathetic with the view of the Council, and has recommended that the matter should be

taken up directly with those departments of the public service which have not hitherto been communicated with.

This is so far satisfactory, and now that attention has been directly drawn to the matter it is to be hoped that these departments, in their own interests as well as that of the young engineers whom they employ, may see fit to adopt so obviously reasonable and sound a proposal.

Another matter of deep interest to the members of the Institution, and importance to the future of the profession, is the inquiry which the Council undertook into the subject of the conditions which should be observed in regard to the practical training of young engineers. Considerable progress has been made with this matter, which would have been brought to a conclusion ere now but for the interference caused by the removal of the premises.

Members are to be congratulated on acquiring possession of a new and handsome structure, which I hope can fairly be regarded as a permanent home.

It will be found that the nature and amount of the accommodation provided is a very great advance on that in the old building.

In one special respect this is so, viz. in the Great Hall, which is a special feature of the building, and which will make the important functions of the Institution to be held within its own premises a matter not only of great convenience to the members, but also a great saving of expense.

The members will join in offering to Mr. Miller, the architect, sincere congratulations on the successful accomplishment of this fine witness to his skill. At the same time, they must not forget to thank all those who in humbler capacities have assisted in the construction of the new home.

I am sure that in connection with this topic our thoughts will naturally turn to the regrettable decease of our late friend, Sir William White. He was so enthusiastic in everything that concerned the Institution, and he laboured so keenly and with such success as Chairman of the Building Committee in the promotion of this work, that I am sure, much as we all miss him in other ways, we must specially deplore the fact of his passing before witnessing the completion of this particular labour of love.

It is satisfactory to be able to recognise that the affairs of the Institution are in a flourishing condition, as can readily be gathered from the very full information given in the report of the Council alluded to above.

THE COTTAGE PROBLEM.*

By THOMAS POTTER.

(Continued from page 385.)

Supplying Quantities.

It is not a big job to take out the quantities for a cottage or a pair of cottages, and with a knowledge of the price of materials the cost within 5 per cent. can be assured. It is desirable, if only for the sake of the brick merchant and timber merchant, that the quantities should be supplied the builder. If built by contract it is his own fault entirely then if he prices them below prime cost. I don't agree with the remark I once heard that it is not advisable to supply inexperienced small builders with the quantities, as in framing their own estimates they miss things, and in this way send in low tenders. This is accountable, I suppose, in a measure for many builders' bankruptcies in country districts.

Internal Arrangement.

Local customs vary in different parts of the country, and a suitable internal arrangement of cottages in some parts is not considered so suitable in others. At the Letchworth Show there were plans of from thirty to forty cottages erected on landed estates in different parts of the country, many of which showed clever arrangements for economy in construction and good planning, but either the building in which they were placed was in an obscure position or the exhibitors were the obscure factor, I don't know which, for they obtained but slight recognition.

Foundations.

The first cost in building cottages is the foundations, and here a considerable saving may be sometimes effected in this way: a layer of concrete over the entire area is always considered necessary to prevent damp ground air from rising, and is often compulsory. If the loose earth or natural soil, which is sure to contain some form of plant growth, is

* A Paper read at the Holborn Restaurant before the Society of Estate Clerks of Works, on Oct. 14.

removed for a few inches in depth and dry coarse rubble is deposited in its place and rammed, and four or five inches of cement concrete, 1—5, is laid thereon and well beaten, and if the subsoil is not of the best a few quarter-inch reinforcing rods embedded therein, no better foundation is necessary. The concrete must be of a softish character—coke breeze, boiler ashes, or crushed soft brick *débris*, for instance. This is not a new idea, but has been practised for many years, and is called a raft foundation. If even the raft subsides somewhat it does so uniformly, and no cracks in walls or partitions result.

The raft foundation provides a base to which floor boards can be nailed for living rooms and granolithic paving for the remaining portions. This method makes a floor that is vermin-proof, fire-proof, and rot-proof, and surely that is better than an expensive wood joisted floor on sleeper walls, which is neither. But linoleum must not be laid on floors of this kind; it will quickly cause dry rot in the boards. The concrete must be dry before the boards are nailed thereto, and as a rule there is ample time for this while the building is in progress. The Departmental Committee say a layer of bituminous material between boards and concrete is necessary. It may be so where the subsoil is a bog, but I have never known a case where it has been necessary, nor have I ever had a failure so far as I know, and I believe I was the first to adopt the system twenty-five years since. I have heard of failures, and on inquiry found that the concrete had only been laid a week or two instead of the necessary month or two.

Walls.

Walls form the largest and costliest factor in cottage building, and is the one about which much disputation has taken place. Many kinds, other than those we are familiar with, have been suggested or patented within the last thirty years, and which consist chiefly of wood framing to which concrete or composition slabs are fixed, but they appear to have dropped out of use almost entirely; they offer no special advantages either in cost or otherwise.

I built some cottages at one time of light steel standards to which small iron bars were attached and expanded steel lathing fixed thereto on both sides and plastered. There was not much difference in cost between these walls and ordinary 9-in. brick walls—about 10 per cent. less, but the weight was only 10 per cent. of brick walling, and the walls were always dry. The difficulty was and is that a man used to fixing metal lathing is required, and for remote districts this is a disadvantage. Possibly something of this character could be developed worth consideration and experimenting with.

So far as I know, the only materials for walls in common use now are bricks, concrete, stone, and timber. No one would think of using galvanised iron, and the saving in cost would be but little.

Measuring Walls.

In connection with the measuring of and estimating for cottage walls it would be much simpler—more especially for comparisons of cost—to adopt the superficial yard as the standard, instead of the complicated calculations necessary with the standard rod, cubic yard, and other local forms.

Brick walls 9 in. thick—or 11 in. with a 2-in. cavity—take 100 bricks per superficial yard, and if they can be delivered at, say, 30s. per thousand, lime 12s. per cubic yard, sand 4s. per yard, and labour and scaffolding costs 65s. per standard rod, the prime cost works out at about 5s. 2d. per superficial yard.

Stone Walls.

The cost of stone walls is more difficult to get at. The stone may be hard to work or the reverse; cartage may be a large item, or it may be obtainable near at hand. It rarely works out at the cost of brick work.

Owing to the unavoidable thickness of stone walls, the cubic capacity of a building is increased to obtain the necessary inside accommodation. If they are 17 in. thick there is a loss of 6 in. compared with 11-in. brick walls, and which at 4d. per ft. cube amounts to 1s. 6d. per superficial yard of walling.

Concrete Walls.

Concrete for walls of cottages is not so popular as it was thought at one time it would become, and for various reasons, whether built with cast blocks or monolithic. The latter is where the material is poured into moulds or frames of a temporary nature and made of wood. Both block and monolithic walls are easier of construction and cost less where there are fewer breaks and a lesser number of doors and

windows than cottages require, as, for instance, farm buildings and others of a similar class.

All window and door frames have to be built in, and with cottages these openings lessen the measurable area of the walls, but increase the labour. It is not unusual in an estimate to include all openings in the superficial area of the walls to compensate for the trouble and cost of fixing window and door frames. This applies to both block and monolith construction, and as a result comparisons of cost are often in favour of brick or stone.

The cost of the timber and fixing and striking of wood forms for monolithic walls is considerable, and which can only be lessened if a number of similar or dissimilar buildings are required in the same neighbourhood, so that they may be used over and over again. Practically, it does not pay to build a pair of cottages with concrete walls without there are others to follow or some other buildings to erect near at hand, and a capable and trustworthy carpenter foreman, who must be always on the job, is available. Concrete construction must be made a business of if it is to be satisfactory in every way.

It has its advantages, however. Seven inches thick is ample for cottage walls, which are dry internally and of enormous strength, so much so that it sometimes costs less to build a concrete wall than to remove it. Two to three days for a labourer to cut a doorway through a 9-in. wall with steel chisels and hammer is about the average in my experience.

Other advantages are that materials are to be found in almost any neighbourhood, even where this seems to be very unlikely. I built a pair of two-storey cottages more than twenty years since, and, for want of anything else available, with concrete made of soft chalk dug on the site, and with concrete bedroom floors. They are perfectly dry and always have been.

Wood Walls.

Wood framing, weather-boarded on the outside and lathed and plastered on the inside, has been advocated for cottage walls. Foreign timber is becoming worse and worse in character and higher in price, and some of the commoner qualities possess the elements of dry rot when imported—in fact, dry rot is becoming an epidemic, and once it attacks wood in a building there is no telling to what extent it will spread. Walls of this kind require a brick or concrete base above the natural ground. Built with sound wood of good quality, the cost at the present time would be about 3s. to 3s. 6d. per superficial yard, and the brick or concrete base to add. Then there is the cost of periodical painting or tarring, inside lathing, which a brick or concrete wall does not require, danger from fire and dry rot, extra cost of insurance, the difficulty of selling or obtaining loans on mortgage, and providing a harbour for rats, mice, and other pests.

Roughly, the superficial area of the walls of a pair of cottages is 240 yards, and if the difference in first cost between brick or concrete walls and wood walls is 1s. 6d. a yard, the total saving in first cost would be 240 by 1s. 6d.—£18 or £9 a cottage, but the probability is it would be on an average considerably less. So far as my experience goes, there are no materials known at present for agricultural labourers' cottage walls, all points considered, more suitable than bricks or concrete. Bricks are never likely to cost much less than at present, and any cheapening in walls points to the adaptation of concrete in some form or other, and this might result if the subject-matter was thoroughly gone into in a systematic way and at some cost. At present the high price of cement is against the use of concrete, but as it is far and away greater than its cost this will ultimately no doubt find its own level.

Partitions.

Inside partitions of cottages should, if possible, be solid. All hollow places in cottages should be avoided; one never knows what may find its way there. The only exception is hollow-brick walls externally.

Concrete slabs 2½ inches thick for the ground floor are of ample strength to carry the wood floors over, and 2 inches do very well for the upper floors. They should be made of coke breeze if procurable, owing to its lightness, and to which door jambs and other woodwork can be nailed without building in wood bricks or using wood plugs. The prime cost is about 1s. 6d. to 2s. a superficial yard for making, and 3d. to 4d. for fixing, which compares favourably with half-brick walls costing 2s. 9d. to 3s. 6d. a yard, and in addition there is a saving in space. They are easily made in wood moulds and can be finished smooth enough to render plastering unnecessary where economy must be



THE LEIPZIG MEMORIAL.—Professor BRUNO SCHMITZ, Architect.

[From *Deutsche Bauzeitung*.]

practised. Wood-stud partitions lathed and plastered are the worst features in a cottage—they are easily damaged, dangerous in case of fire, and afford a retreat for domestic pests.

Roof Coverings.

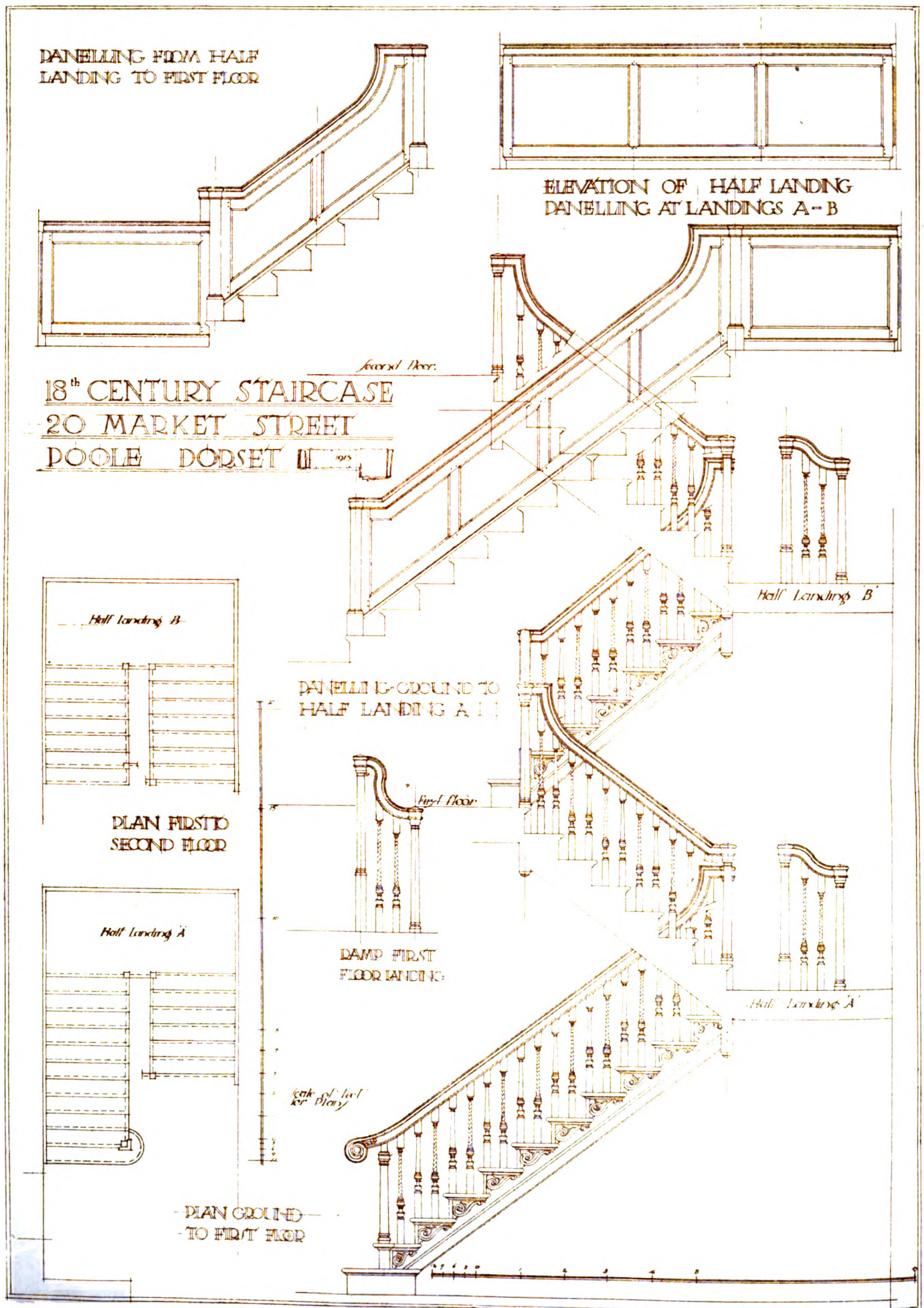
For roof coverings slates and tiles hold their own as a rule. There are tiles made of patented materials and many kinds of sheet coverings, but unless there is evidence of at least twenty years' wear and tear free of maintenance cost it is doubtful whether any great saving can be effected. Unlike huge buildings with large roof areas, the area of a cottage roof is insufficient to practise methods which may be good enough in many cases but risky. Cost of maintenance is an important feature in labourers' cottages which have to be let other than at an economic rent.

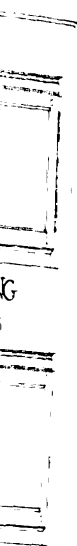
Concrete Roof.

Flat concrete roofs have been suggested and tried for years past, and if they could be relied on indefinitely to keep out water without being asphalted, roofs of this character would cost less than wood and slate or tiles. There is ample testimony that they have remained sound for several years; on the other hand, they have failed in

most cases, and eventually had to be asphalted. Asphalt firms have much experience in this direction, and the cause is this: concrete, like all other building materials, expands and contracts with change of temperature, and this is estimated to be an eighth of an inch in every 30 feet for a variation of 50 degrees of temperature. But this can be controlled to a great extent by inserting some form of reinforcement therein which, being less exposed to climatic changes, is not affected so readily, and this prevents in a degree the effects of temperature changes on the concrete. But temperature changes are controlled in another way—by super-imposing heavy loads on the concrete. To illustrate my meaning, concrete walls of buildings seldom give evidence of change of temperature by reason of the heavy load of floors and roofs which they support, and if they do it is usually near the top, where the load is least. This is proved in the case of enclosure and other walls of moderate height carrying no load. Temperature cracks invariably commence at the top and die away before reaching the bottom, owing to being controlled by the weight of the upper portion. The cause of this puzzled me for a long time.

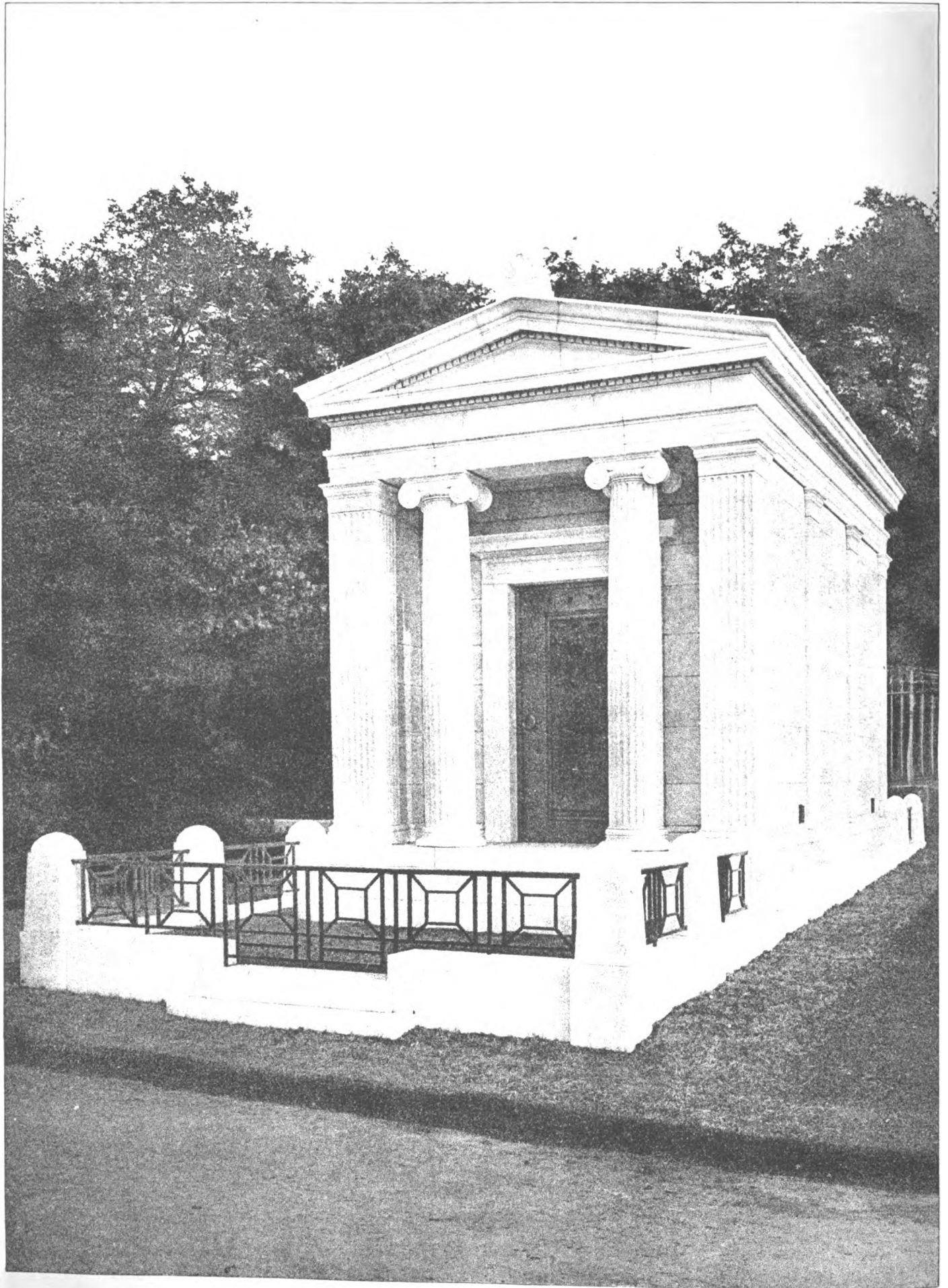
Concrete roofs not being loaded, or only to a small





G

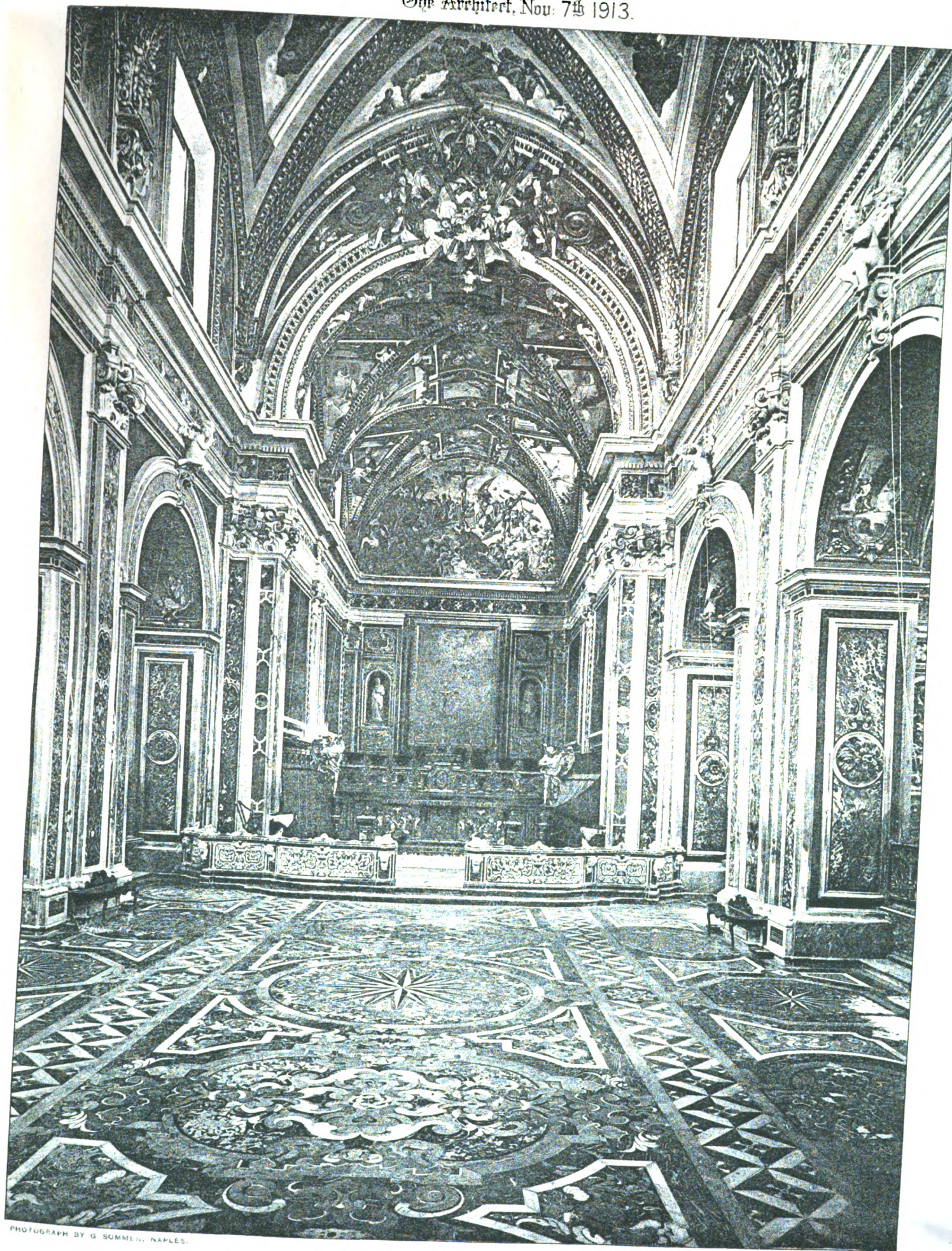
8



INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

MAUSOLEUM. PUTNEY VALE CEMETERY.

Mr. F. DARE CLAPHAM, F.R.I.B.A., Architect



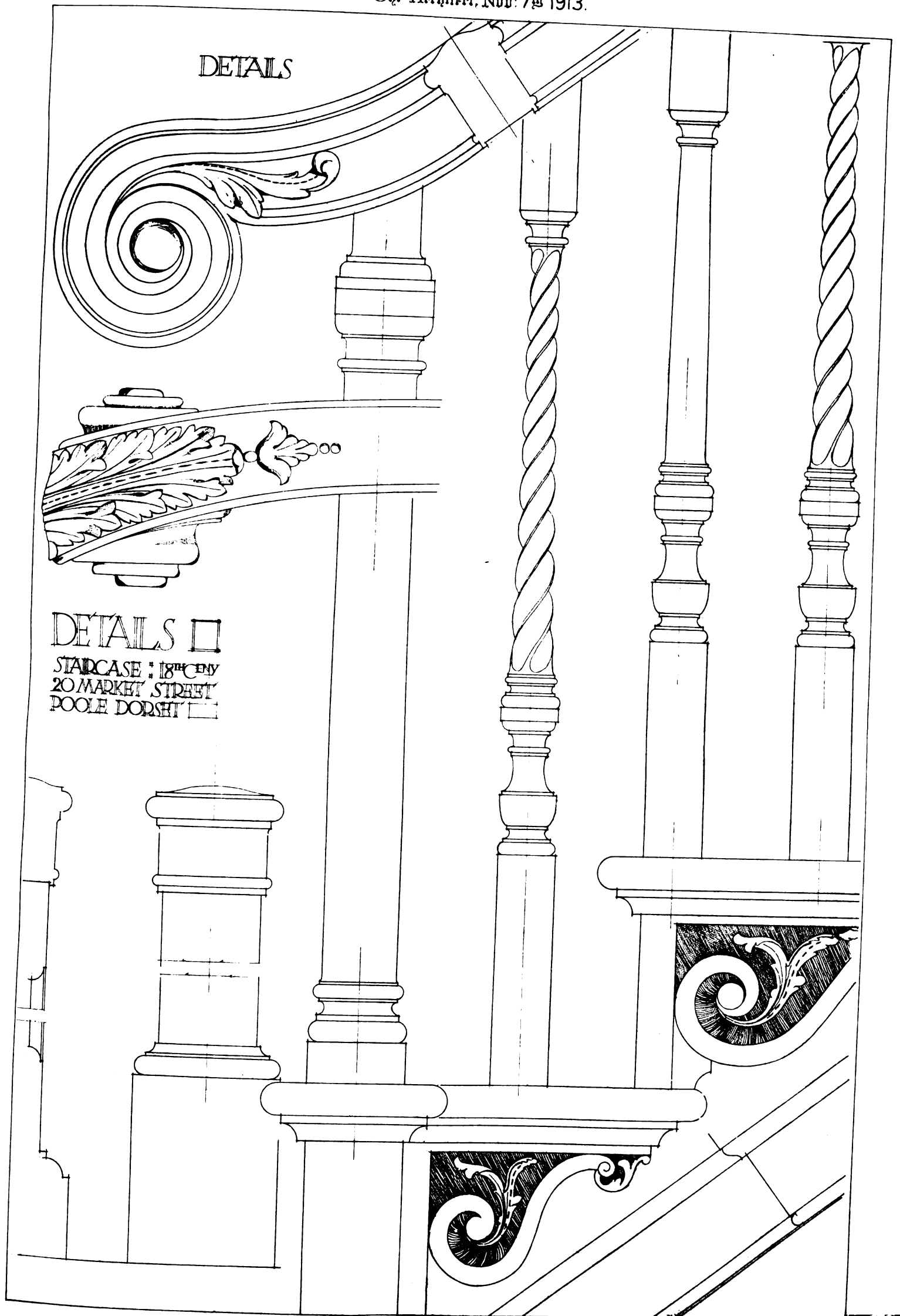
PHOTOGRAPH BY G. SOMMEIL, NAPLES.

INK-PHOTO: SPRAGUE & CO. LTD 69 & 70, DEAN STREET, SOHO, W.

INTERIOR OF CHURCH OF SAN MARTINO, NAPLES

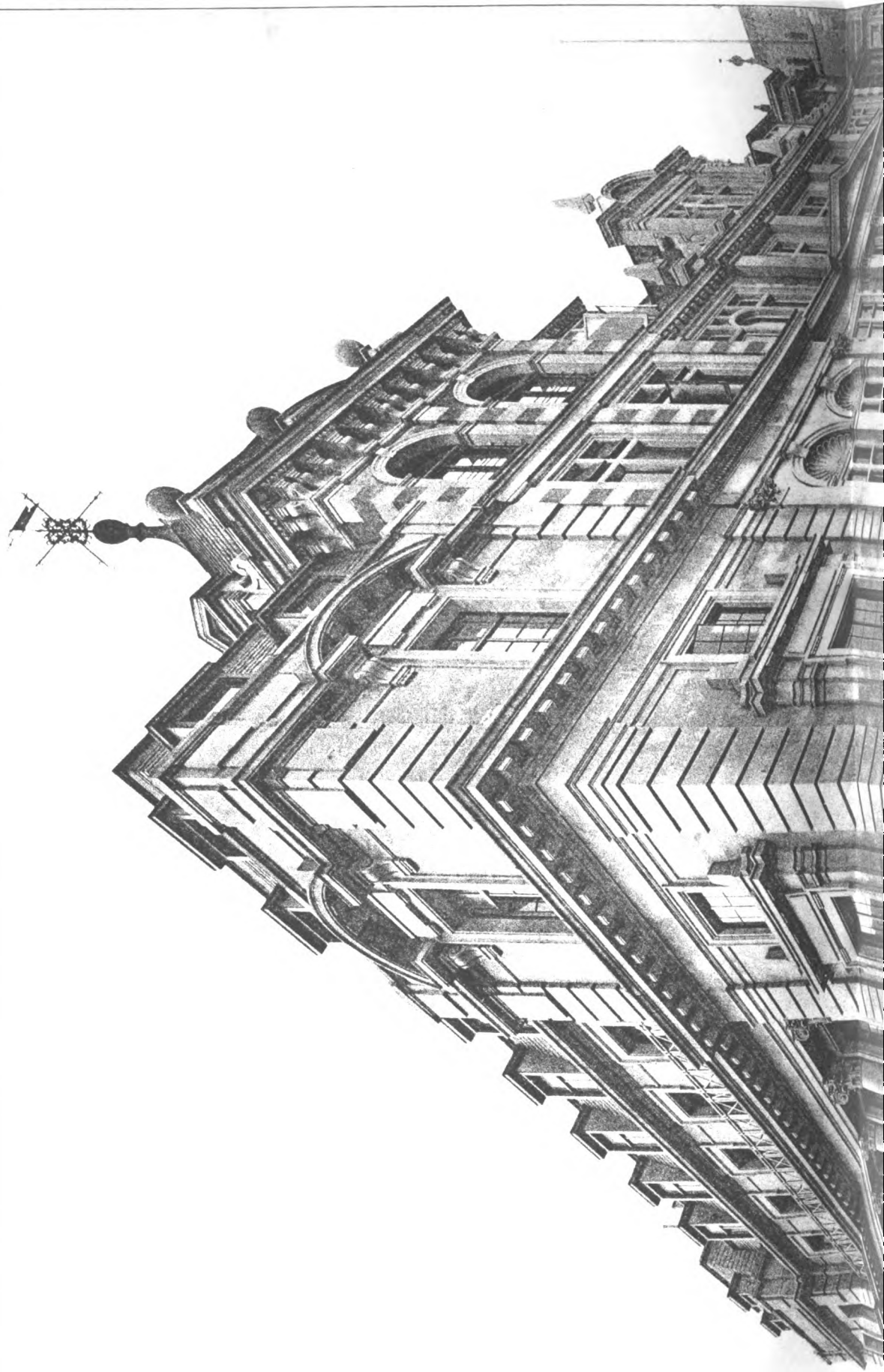
DETAILS

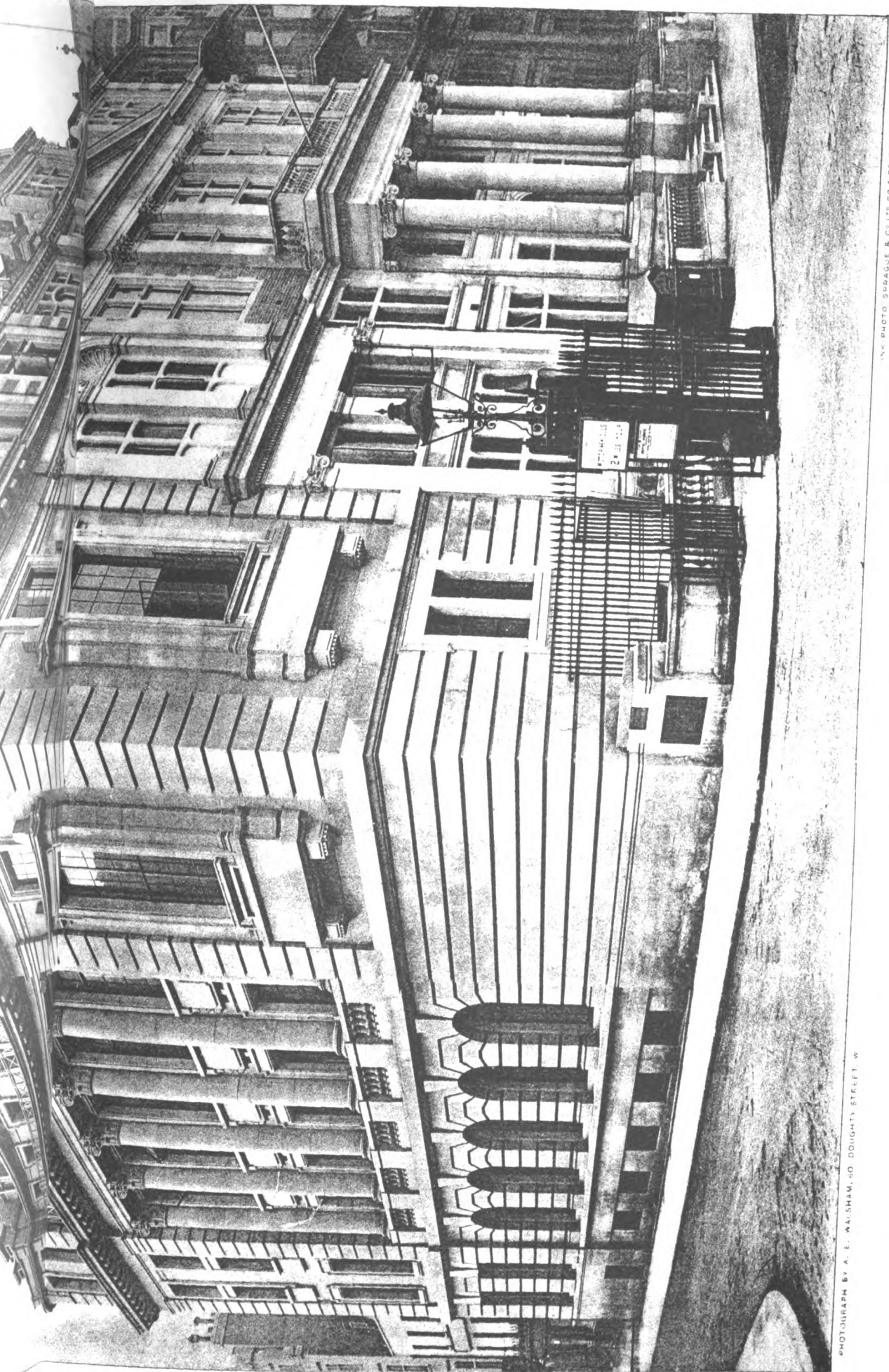
DETAILS □
STAIRCASE : 18TH CENY
20 MARKET STREET
POOLE DORSET



11

The Architect. Nov. 7th 1913.





PHOTOGRAPH BY A. E. WALSHAM, 40 DOUGHTY STREET, W.

NEW PHOTO SURROUND & CO. LTD. 89 & 70 GREAT STREET, SOHO, W.

THE INSTITUTE OF MECHANICAL ENGINEERS, GREAT GEORGE STREET, S.W.

Additions by Mr. JAMES MILLER, A.R.S.A., Architect

extent, and
any, or b
are more e

Reinfor
temperatu
constant st
perhaps no
these crack

changes.
mittee was
tar and sa
only a lit
character,
everywhere

If there
hat the m
be taken i

THERE COU
present to
ing. In
to thought
the appro
snows of
pense and
house and
may hope
extra coa
rooms, th
the cold

Should
measur
until v
its ow
used
longer

It

a vex
coal.
ment
only
Inc
refer

are
Was
aga
tion
room

han
are
nu
its
of
m
or
by
co
fe
v
c
M

extent, are practically slabs of concrete uncontrolled by any, or but little, superincumbent load, and in addition are more exposed to climatic changes than walls.

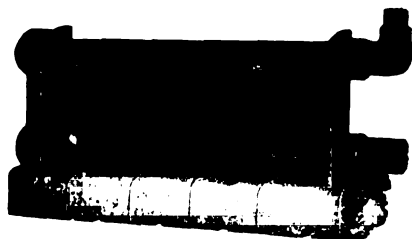
Reinforcement saves the roof from cracks resulting from temperature changes for some time, but eventually, the constant stress having a weakening influence, cracks ensue, perhaps not for some years, and nothing will ever prevent these cracks from opening and closing with climatic changes. Evidence given before the Departmental Committee was to this effect, and the remedy stated was to tar and sand the roofs, a common practice, but which lasts only a limited time. Cracks in flat slabs of a similar character, such as in footpaths, paving, &c., are to be seen everywhere.

If there is one thing that is needed in a cottage it is that the roof be made watertight, and no liberties should be taken in this direction with the roof.

(To be continued.)

PRIOR'S PATENT HEATER.

THERE could not be a more appropriate moment than the present to invite our readers' attention to questions of heating. In the autumn a householder's fancy dolefully turns to thoughts of cold, and he vainly speculates on whether the approaching winter will prove mild or severe. But he knows only too well that whichever it be extra expense and trouble will be entailed in the effort to keep the house and its occupants warm. If it be a mild winter he may hope to escape fairly cheaply with no more than one extra coal-burning fire or gas stove in the principal living-rooms, though this calls for some Spartan resolution when the cold bedrooms and other apartments come to be occupied.



Double Heater, 8 Tubes.

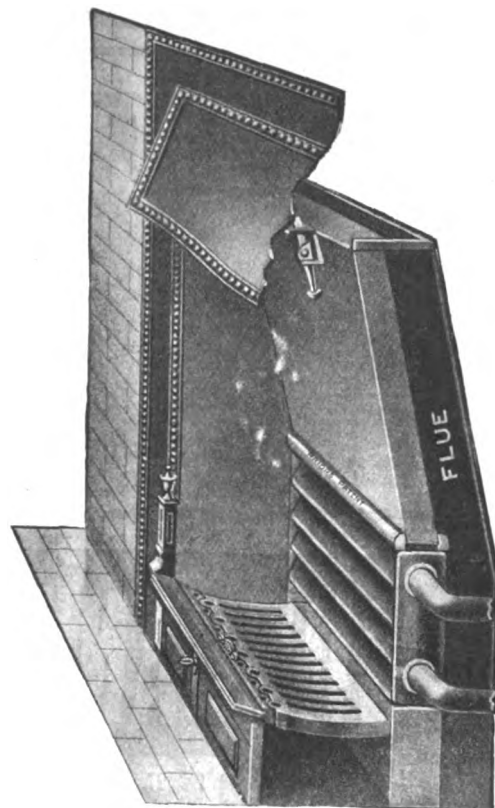
Should the weather prove unkind, personal comfort will be measured by readiness to employ artificial sources of heat until we reach the ruinous condition of each room warmed by its own fire, gas stove, or electric radiator. At least, it so used to be. But we hope to show it need continue so no longer.

It is not our intention to repeat any arguments on such a vexed question as the comparative advantages between gas, coal, or electricity as a means of heating. It may just be mentioned that the time-honoured open fire is accused of only sending about 25 per cent. of its heat into the room. Incidentally, we may express doubt whether this calculation refers to the up-to-date and economic types of open fire which are so undeniable an advance on the fire of fifteen years ago. Waste there certainly is. But could such a charge be levied against a fire which, without any increase of coal consumption, simultaneously warmed two or three, or even four, rooms? And that is what can now be done.

About eight years ago Mr. James D. Prior, of Birmingham, placed on the market a new system of warming which aroused very considerable interest, and has made a very large number of enthusiastic friends. The principle is simplicity itself. A metal heater containing water is fixed at the back of a sitting-room fire, and absorbs the waste heat that would otherwise be lost up the chimney; the heated water is transmitted through a small pipe to radiators fixed in the room or rooms requiring warmth, and then returns to the heater by another pipe. This entry of water into each radiator is controlled by a tap, and it may be kept out without interfering with the circulation. The apparatus can be supplied with water either automatically or by hand, and only very occasionally is the addition of fresh water necessary. The heater does not become blocked up by deposit, as the same water is used over and over again. The pipes may be concealed in the angles of the walls or behind the skirting board. As already mentioned, this new system began making friends some few years ago, and has continued to do so ever since. Mr Prior has received numerous testimonials, which collec-

tively make most convincing reading. An abstract from that written in 1910 by Professor Geikie, of Edinburgh, must suffice: "The heating apparatus you installed for me has been a marked success. We have now had two winters' experience of it, and I cannot speak too strongly in its favour. . . . One of the great recommendations of the apparatus is that it requires no looking after—it is automatic, and cannot get out of order. Altogether it is a most satisfactory invention, for which there ought to be a large demand." Other letters are still more emphatic in its praise.

But Mr. Prior has now improved on and supplemented the original type of heater by offering as an alternative a more powerful one, which is equal to 120 feet of radiation;



Sectional Illustration of the Imperial Grate showing the position of Heater, Back Flue and Damper.

that is, will heat four or five moderate size radiators instead of two or three without the slightest increase in coal consumption. Like the other, it is made from heavy seamless copper tube and gunmetal castings, which should last for a hundred years, and it is brazed into the grate. But the tubes are horizontal instead of vertical in the new type, and are close together instead of widely spaced. It involves, however, the provision of an auxiliary flue behind the back of the grate, to draw the heat from the fire between the tubes of the heater. At the top of this flue a damper is fixed, so that the draught and heat can be regulated by opening or closing the flue. This added control is a distinct advantage.

Most firegrates are suitable for taking Prior's distributor, but if necessary the back may be removed and built up in firebricks or a special fireclay slab lining inserted. This patent system has already rendered service for a multiplicity of uses. In its revised form it should win still wider approval for its economy and efficiency.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Luton.—Elementary School, Denby Road.

BERKSHIRE.

Ashbury.—C. of E. School: enlargement and improvement.

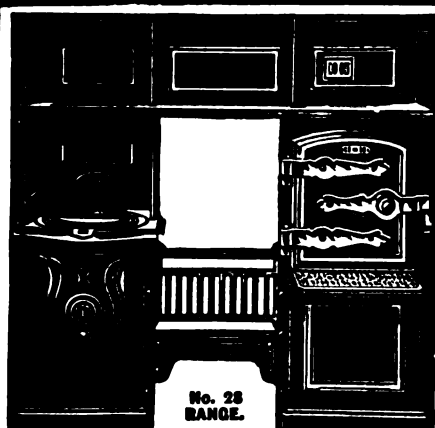
PEN-YR-ORSEDD

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

SLATE QUARRY CO., Ltd.,
Supply Best and Seconds Red and Purple

SLATES

TO MERCHANTS AND THE TRADE



No. 28
RANGE.

Fletcher, Russell & Co., Ltd.

Manufacturers of

MANTELS, OVERMANTELS, COMBINATION MANTEL
REGISTERS, SQUARE REGISTERS and INTERIORS
WITH BRASS or COPPER CANOPIES, GAS and COAL
RANGES, YORKSHIRE RANGES, CURBS, LAVATORY
STANDS, GAS STOVES, GAS COOKING RANGES,
RADIATORS, WORKSHOP AND LABORATORY
APPLIANCES, &c.

WARRINGTON:
Palatine Works.

MANCHESTER:
130-132 Deansgate.

LONDON:
134 Queen Victoria St.

BRUSSELS:
20 Rue T'Kint.

W. M. DUNCAN TUCKER & SONS, LD.

TELEPHONE
2
TOTTENHAM.

TOTTENHAM. N.

TELEGRAMS
"HORTICOLE"
LONDON

JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0	Asbestos-covered £1 12 8

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

ENGLAND—continued.

BUCKINGHAMSHIRE.

Thame.—Picture Palace, North Street, for the Provincial Electric Cinema Company.

CAMBRIDGESHIRE.

Cambridge.—The Leys School: development.

CORNWALL.

Falmouth.—Grammar School. Messrs. Mitchell & Bond, contractors, 4 Tehidy Road, Camborne (£6,925).

Padstow.—Eight workmen's cottages, for the U.D.C.

St. Just.—House, Carnyorth, for Mr. J. Walls.

Torpoint.—Boys' schools for 130 and 260 places severally.

Truro.—County Museum, Art Gallery, and Reference Library. Mr. Sampson Hill, architect, Green Lane, Redruth.

CUMBERLAND.

Cockermouth.—Cottage Hospital (£2,000).

Penrith.—Boys' Council School, Castle site.

DEVON.

Devonport.—Council School, College Road (£2,900).

DURHAM.

Murton.—One hundred and three Council houses. Mr. Pitt, contractor (£27,600).

Pelaw-on-Tyne.—P.M. Church.

West Hartlepool.—Premises for the N.E. Banking Co., Ltd. Mr. C. F. Burton, architect, Shipping Chambers, George Street.

ESSEX.

Barking.—Secondary School, Longbridge Road. Mr. F. Whitmore, County architect, 67 Duke Street, Chelmsford.

Brentwood.—Church School (for 229 infants), New Road. Mr. A. T. G. Woods, architect, New Road. F. W. Jarvis, contractor, Ongar Road (£2,700). Girls' Secondary School.

Chelmsford.—Three houses, Swiss Avenue, for Mr. Rosser. Two houses, Swiss Avenue, for Mr. W. J. Stubbings.

House, Swiss Avenue, for Mr. Woodhouse.

Two houses, Bouverie Road, for Mr. G. W. Smith.

House, off Springfield Road, for Mrs. Byford.

Clacton, Little.—Public Elementary School for 120 places. Mr. F. Whitmore, architect (as above).

Grays.—Council School, Langdon Hills: extension.

Saffron Walden.—Isolation Hospital: alterations and extension (£3,400).

Shoeburyness.—Mixed School, Richmond Avenue.

Upminster.—Council School, Cranham Road.

ISLE OF WIGHT.

Ryde.—"Woodlands Vale": additions and alterations.

Mr. J. L. Barton, architect, 1 St. Thomas Street.

KENT.

Canterbury.—St. Mary Brodin Parochial School: addition for 220 places.

C. of E. School, Broad Street: addition for 140 places.

Margate.—Congregational Church, Ethelbert Road, Cliftonville.

LANCASHIRE.

Crompton.—Technical School.

Hindley.—Electricity sub-station.

LINCOLNSHIRE.

Barton-on-Humber.—Council School (£1,150).

Cleethorpes.—Council School, Barcroft Street: enlargement.

Crosby.—Council School.

Little Coates.—Council School: enlargement (£2,700).

Walesby.—Parish Church (for 160 sittings). Mr.

Temple Moore, F.R.I.B.A., architect, 44 Bedford Row,

London, W.C. Messrs. Scarborough, contractors,

Upper Moor Street, Lincoln.

MIDDLESEX.

Ealing.—New parish church for 750 sittings, North Ealing (£7,000).

Magistrates' Court (£7,700).

Golders Green.—Hippodrome for Sir J. Beecham and Mr. W. Gibbons (accommodation for 3,000).

Willesden.—Council Offices: extension.

MONMOUTHSHIRE.

Tredegar.—Fire Station, Harcourt Terrace.

NORFOLK.

Acle.—Unionist Hall. Mr. A. E. Daniels, contractor.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Ten cottages for aged miners, Benton Road, Gosforth (£10,000).

Prudhoe.—Wesleyan Sunday School: enlargement (£550).

NOTTINGHAMSHIRE.

North Wilford.—Church for 650 sittings (£6,000).

SOMERSET.

Taunton.—Boys' Council School (for 400 places), Highfields Upland (£16,000).

STAFFORDSHIRE.

Burton-on-Trent.—Museum and Art Gallery, Gas and Electricity Show-rooms, &c., corner of Guild and Station Streets (£7,000).

Darlaston.—Council School: extension for additional 250 places.

Kids Grove.—Boys' Council School for 220 places.

Newcastle.—Public Library. Messrs. Briggs, Wolstenholme & Thornely, F.F.R.I.B.A., architects, Royal Liver Buildings, Pierhead, Liverpool.

Tipton.—Training Home for nurses.

SURREY.

Croydon.—Wesleyan Church and Hall, Beddington Grove. Four houses, Ashburton Avenue, for Mr. T. G. Crump.

Seven houses, Ashburton Road. Mr. F. Windsor, architect, 1 High Street.

Two houses, Guildford Road, for Mr. W. B. Coomber.

Thirty-four houses, Meadvale Road, for Mr. A. J. Frazer; also

Four houses, Northway Road.

Three houses, Park Road, for Mr. C. J. Gray.

Six houses and shops, Lower Addiscombe Road: additions for Mr. E. Bates.

Guildford.—Twenty Council cottages, Old Farm Road, Slyfield Green (£4,300).

Municipal Offices, Tuns Gate (£4,000).

Penge.—Music Hall, Beckenham Road, for the Penge Empire Theatres, Ltd.

Reigate.—Grammar School.

Surbiton.—Houses, Ditton House Estate. Messrs. Palgrave & Co., architects, 28 Victoria Street, London, S.W.

SUSSEX.

Brighton.—St. Augustine's Church, Stanford Avenue: chancel (£5,000 to £6,000).

Hastings.—Kursaal (£40,000).

Patcham.—Open-air school, Loder Road, for 700 places.

Council School, Coombe Road: infants' department.

WARWICKSHIRE.

Birmingham.—Cinema Theatre, Warwick Road, Tyseley, Acocks Green, for Mr. B. J. Christian.

Bluecoat School, Edgbaston, for 270 boys and girls (£50,000).

Coventry.—Workhouse: alterations. Mr. T. F. Tickner, F.R.I.B.A., architect, High Street Chambers.

WORCESTERSHIRE.

Dudley.—The Guest Hospital: additions. Mr. T. Glazebrook, architect, 23 Wolverhampton Street.

YORKSHIRE.

Honley.—Picture Palace. Mr. J. Ainley, architect, Slaithwaite.

Hull.—Picture Theatre, corner of Prospect and Spencer Streets, for the Prospect Picture House (Hull), Ltd. Messrs. Freeman, Son & Gaskell, architects, 11 Carr Lane.

Ruswarp.—Parish Hall (£900).

Shipley.—Public Offices, Manor House Estate (£10,500).

WALES.

Holywell.—Workhouse: infirmary (£7,000).

Neath.—The Gnoll Schools: junior boys' department for an additional 440 places.

Pontardulais.—Welsh Calvinistic Chapel.

Swansea.—St. Jude's Church. Mr. E. M. B. Vaughan, F.R.I.B.A., architect, Dumfries Place, Cardiff.

Hospital: additions (£8,000 to £9,000).

Council School, Greenhill site, for 328 children. Mr. G. E. T. Laurence, A.R.I.B.A., architect, 22 Buckingham Street, Strand, London, W.C.

SCOTLAND.

Dunfermline.—Premises, High Street, for the Union Bank of Scotland, Ltd.

Edinburgh.—No. 7 Ashley Buildings: alterations, for Moray Knox U.F. Church Trustees.

Forfar.—Model lodging-house: extension (£750).

Kilwinning.—Post Office, Main Street, for Mr. W. Service.

Renfrew.—Public swimming baths.

Rothsay.—Fire Station, High Street.

West Calder.—Premises for the Co-operative Society, Ltd.

Mr. W. Baillie, architect, West Regent Street, Glasgow.

Whitehill (near Cupar-Fife).—Farm steading. Mr. D.

Storrar, architect, 3 St. Catherine Street, Cupar.

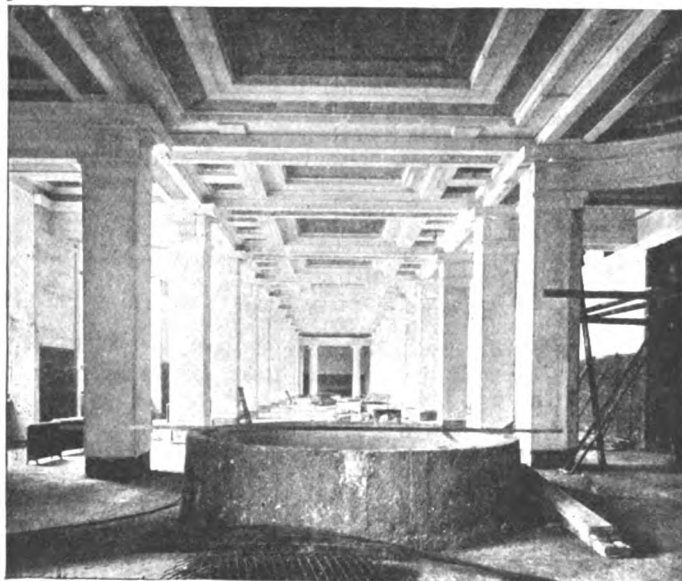
THE EXPANDED METAL COMPANY

LIMITED.

Telephones: Victoria 1314, Gerrard 819. Head Office: YORK MANSION, YORK ST., WESTMINSTER, S.W. Telegrams: "Distend, Vic., London."
 Telephones: West Hartlepool 94 (2 lines). Works: STRANTON WORKS, WEST HARTLEPOOL. Telegrams: "Expansion, West Hartlepool."

Patentees and Manufacturers of

EXPANDED METAL



BRITISH MUSEUM EXTENSIONS, LONDON.
 An example of Expanded Metal Lathing and Plaster Suspended Ceiling Work.
 Architect: Mr. John James Burnet, A.R.S.A., F.R.E.B.A., Glasgow.
 Contractors: W. E. Blake Ltd., London and Plymouth.

FOR REINFORCED CONCRETE AND
 FIRE - RESISTING CONSTRUCTION.

EXPANDED STEEL SHEET AND
 BAR REINFORCEMENT
 for CONCRETE.

"EXMET" REINFORCEMENT
 for BRICKWORK.

EXPANDED METAL LATHINGS
 for PLASTER.

EXPANDED METAL SHEETS
 for FENCING, DIVISIONS, GUARDS, VENTILATORS,
 LOCKERS, BASKETS, &c.

Please write for Illustrated Handbooks and
 Price Lists.

106 NEW BOND STREET:
 Telephone: 2994 Mayfair
 Telegrams: "Surpass, London."

SOUTH NORWOOD:
 Telephone: 1063 Croydon.
 Telegrams: "Smisurato, London."

JAMES SMITH & SONS (NORWOOD) LTD.

106 NEW BOND STREET, W., and
 JUNCTION WORKS, SOUTH NORWOOD, S.E.

Builders and Decorators.

Every description of Alterations,
 High Class Decoration, Plumbing,
 Drainage, Heating and Electric
 :: Light, Bells, Gas, etc. ::

ESTIMATES FREE.

BEDFORD LEMERE & CO.

Architectural Photographers to H.M. the King, H.M. Office of Works, H.M. Office of Woods, London County Council, &c.
 PHOTOGRAPHS TAKEN & PROOFS DELIVERED SAME DAY. 50,000 ARCHITECTURAL & DECORATIVE ON VIEW.

PRICE LISTS AND ESTIMATES FREE.

Tel.: 4258 Central.

147 STRAND, LONDON, W.C. (First floor).

Established 1862.

SCAFFIXER

THE PATENT RAPID-SCAFFOLD-TIE CO. LTD.
 • 124 VICTORIA ST. WESTMINSTER •

TRADE-MARK
SCAFFIXER

SCAFFOLD TIES

TELEPHONE: 6030 WESTMINSTER
 TELEGRAMS: "SCAFFIXER" LONDON
 CODE: A-B-C (5th EDITION)

A LIST OF ART PLATES published in "The Architect"
 will be forwarded on application to Gilbert Wood
 & Co., Ltd., Imperial Buildings, Ludgate Circus, E.C.

IRELAND.

Belfast.—Thirty-six labourers' cottages, for the R.D.C. Council architect.

Villa, Delamere Drive. Mr. E. R. Kennedy, A.R.I.B.A., architect, 32 Wellington Place.

Cookstown.—Cottages at Aughacolumb and Ballymaguire, for the R.D.C.

Dublin.—Central dispensary. Mr. F. F. McNamara, architect, 192 Great Brunswick Street.

Newry.—Five labourers' cottages (£800). Mr. F. O'Hare, contractor, Warrenpoint.

GLASGOW BUILDING TRADES.

THE annual meeting of the Building Trades Exchange of the City and District of Glasgow, Ltd., was held last week in the Exchange, 75 Buchanan Street, Glasgow. Colonel Bennett presided.

Mr. David Cook, the Secretary, submitted the twentieth annual report, in which it was stated that the Council had strenuously continued their efforts to bring about the maintenance of the separate contract system in all work of any importance. The Council had endeavoured to bring about a remedy for the injustice and handicap to the building trade imposed by the judgment in the Lumsden case, which decided that builders' legitimate profits were subject to increment duty. They addressed representations to the Prime Minister, the Chancellor of the Exchequer, the Secretary for Scotland, and the local members of Parliament on the subject, and obtained an assurance from the Prime Minister that remedial legislation would be introduced into the Revenue Bill. The promise was kept, but, unfortunately, the Revenue Bill was crowded out and did not become law. The efforts made, however, had not been wasted, as the injustice was bound to be righted. An agreement entered into between the Institute of Architects and the Building Trades' Employers' Council regarding certain matters in connection with contracts was brought under the notice of the Council. They considered the spirit of the agreement commendable and the objects aimed at desirable, but the clauses appeared to them rather loosely framed, and not at all certain to attain these objects. The Council further considered that if the agreement was to have any binding effect on the trade generally, the Exchange, the various masters' associations, and the Faculty of Surveyors should have been parties thereto. A very important, if not the most important, matter in the agreement was a clause providing for the insertion in all schedules as one of the general conditions a clause making any change, alteration, or variation instructed by the architect in writing binding on the proprietor. Apart from the question of whether the insertion of such a clause would render the proprietor liable, of which there was room for serious doubt, the Faculty of Surveyors had declined to be bound by the agreement, and the members of the Faculty were not inserting, nor were they likely to insert under the present circumstances, any such clause in schedules. The agreement was obviously, therefore, of little or no practical value in that direction. The Council considered that the whole subject should have been dealt with in a broader manner, and that, instead of only adjusting one or two clauses, an endeavour should have been made to adjust a model form of contract. They had communicated these views to the Institute of Architects and to the Employers' Council, and had further invited the Employers' Council to confer with them as to the parties who should be represented and the procedure that should be adopted in an endeavour to adjust such a model contract.

The Chairman, who moved the adoption of the report, referred to the question of contracts, and said that if they could get the architects and surveyors to fall in with them he thought it would be better for all the trades.

Mr. R. A. McGilvray seconded, and the report was adopted.

MR. J. MACINTYRE HENRY, F.R.I.B.A., of Edinburgh (senior partner of Messrs. Henry & MacLennan), was on Monday last appointed Lord Dean of Guild by the Guildry of Edinburgh. Last year the value of the building work submitted to the Court for approval was £521,663.

MESSRS. WESTON & BURNETT, engineers, Southampton, have prepared a scheme for the drainage of Chandler's Ford at a cost of £10,005. The scheme has been adopted by the Hursley Rural District Council.

PATENT SPECIFICATIONS PUBLISHED

OCTOBER 30, 1913.

Selected by James D. Roots, M.I. Mech. E., Thanet House, Temple Bar, London.

No. 15,664. July 4, 1912.—William Innes, 114 Carisbrooke Road, Walton, Liverpool. Production of lead oxide and in means or apparatus employed therein.

22,683. Oct. 5, 1912.—W. J. Hewitt, 89 Hawksley Avenue, Hillsborough, Sheffield. Windows.

22,809. Oct. 7, 1912.—Johannes Jacobsen, Voorde, Kiel, Germany. Opening and closing apparatus for window shutters.

22,984. Oct. 8, 1912.—James Caley, 16 Alexandra Road, Waterloo. Fire escapes.

23,008. Oct. 9, 1912.—P. E. Sykes, "Lightcliffe," Alexandra Road, Sheringham, Norfolk. Tee-squares, for use on drawing and like boards.

23,082. Oct. 9, 1912.—R. F. Venner, 6 Old Street, Westminster. Electric heating and cooking apparatus.

23,198. Oct. 10, 1912. J. H. Woodington, Sunhill, and E. H. Coles, Woodville, Clevedon, Somerset. Apparatus for indicating sewage accumulation and stoppages in drains.

23,431. Oct. 14, 1912.—H. A. Clarke, "Glenara," Clements Road, Yardley, near Birmingham. Machinery or apparatus for the manufacture of woven-wire material especially suitable for use as wire fencing, reinforcement for concrete, or the like.

24,464. Oct. 26, 1912.—Rowland Parker, 7 Monmouth Road, Dorchester. Sash window fastener.

25,313. Nov. 5, 1912.—Rector Gas Lamp Company, 131 West 31st Street, Manhattan, N.Y., U.S.A. Heating or lighting apparatus.

25,690. Nov. 8, 1912.—George Monk, 33 Grange Road, Chester. Casement windows.

26,134. Nov. 14, 1912.—W. C. Sharpe, jun., Clacton House, Heath Park, Romford, Essex. Coupling device or union for connecting flexible or other tubing to gas brackets or pipes, water pipes, and the like.

26,518. Nov. 19, 1912.—S. R. Baker, Moat Field Works, Moat Street, Willenhall, Staffs. Key-locked bolt for doors and the like.

27,256. Nov. 28, 1912.—J. R. Parker, 35 Great Hampton Row, Birmingham. Fastening for pedestal cupboard doors and other doors.

859. Jan. 11, 1913.—Rev. J. W. Adams, Wall Vicarage, Lichfield. Hand-operated vacuum cleaners.

2,894. Feb. 4, 1913.—Dated under International Convention Feb. 12, 1912. Nino Magelsær, Camilla Collets vei 12, Christiania. Process and material for covering roofs, walls, and the like.

3,088. Feb. 6, 1913.—William Slater, 73 Wrotesley Road, N.W., and O. R. Ham, Willesden Metal Works, 9 Scrubbs Lane, Willesden, N.W. Roller shutters.

5,300. March 3, 1913.—Emil Gersabeck, 29 Burggrafstrasse, Potsdam, Germany. Method for the accurate production of objects furnished with surface patterns, especially such as are designed for wall coverings.

7,099. March 25, 1913.—Donald Donald, Masterton, Wellington, New Zealand. Clamp for doors, windows, and the like.

11,185. May 13, 1913.—F. W. Carmelich, P.O. Box 618, Mobile, Alabama, U.S. Disinfecting device for water closets.

13,072. June 5, 1913.—S. W. Burley, Station Brickfields, Sittingbourne, Kent. Manufacture of fire bricks or blocks.

Any of the above specifications may be obtained from J. D. Roots & Co.

A SCHEME for the erection of new municipal offices and a council chamber will be presented at a forthcoming meeting of the Stepney Borough Council.

THE Alexandra College Hermione Lectures on Art will be delivered at Alexandra College, Dublin, on the afternoons of November 17, 18, 19, and 20, at 4.30 p.m. The Council of the College have appointed as lecturer Mr. William Rothenstein, who is known not only as an artist, specimens of whose work have been placed in many of the permanent art galleries in England, America, and the Colonies, but also as a critic and a writer upon art and artists. Mr. Rothenstein's group of four lectures will form an introduction to Modern Art, and are entitled respectively "Ancient Painting," "Medieval Painting," "Eighteenth-Century Painting," and "Modern Painting."

Tel. Nos.: { Cheltenham, 798 & 799
{ London, North 2165.

Glasgow, P.O. Central 979.
Manchester, Central 5416.

Telegrams: { Sunningend, Cheltenham.
{ Sunningend, London.

H. H. MARTYN & CO., Ltd.

CARVERS

And Architectural Decorators.

250,000 feet of Dry ENGLISH OAK in stock.

BRANCHES

LONDON: 192 ALBANY STREET, N.W.

GLASGOW:

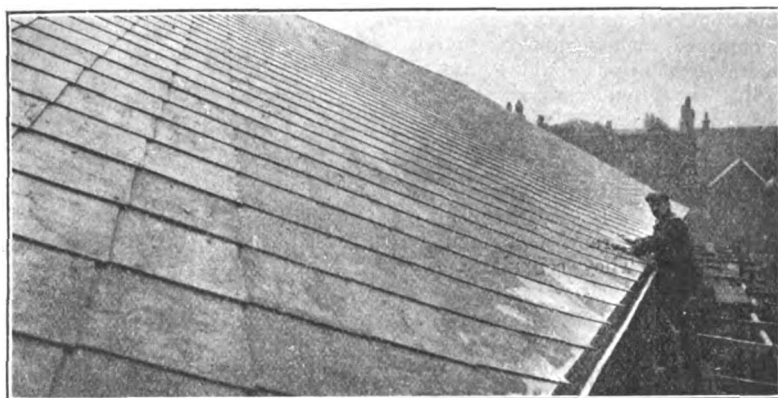
30 GEORGE SQUARE.

MANCHESTER:

6 SOUTH KING STREET

Head Office: Sunningend Works,
CHEL TENHAM

ASBESTONE FOR ROOFING



ASBESTONE possesses special advantages as a roofing material which deserve the careful attention of Architects and Builders. We quote five:—(1) It is very light, therefore a far lighter superstructure can be used and expense saved in that direction. (2) Unlike slate, Asbestone is not brittle, and is easily handled and fixed without risk of loss through breakage. (3) It is fireproof. (4) It is absolutely unaffected by fumes and gases and is waterproof. (5) British manufacture.

Please write for our ILLUSTRATED DESCRIPTIVE BOOKLET, specially prepared to supply necessary information and data to Architects and Builders.

The **BRITISH URALITE CO. (1908), Ltd.** (ROOM 17), 85 Gresham St., E.C.

"THE BEST ENAMELS FOR THE BEST RESULTS."

"ENDELLINE" & "ENDELFLAT"

Used with unfailing satisfaction wherever the finest enamel finish is required.

THOS. PARSONS & SONS,

Makers of the highest class of Varnishes and Japans for over a Century.

**8 Endell Street, Long Acre,
LONDON, W.C.**



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Indian Brickwork.

SIR,—I have just seen the article in your issue of September 12, in which the writer takes certain remarks of mine on Indian brickwork as a text. It may surprise you to learn that I am in entire agreement with the article except where it gives the impression of disagreeing with me and of setting me right. The fact appears to be that the writer has imperfectly understood my meaning, a circumstance for which—in so far as I may have contributed to it by any want of clarity of expression—I tender my apology. But my remarks applied to Indian work, and were intended exclusively for readers in this country. By them I do not think they are likely to be misunderstood. The “irregularities” to which I refer are not such as the writer of the article is likely to have encountered, unless, indeed, he has had a fairly wide experience of work out here, and are not such as to conduce to the charm of texture which he would desire.

It is one of the most difficult tasks that could be undertaken to attempt to render a home architect *au fait* with work conditions out here by any other means than transporting him to the spot and affording him some years’ actual experience. It is nearly approached in difficulty by the task of convincing the home architect that—however competent a master of craft he may be with regard to home work—he is not for that reason in a position to pronounce an opinion on Indian building matters. I do not propose to attempt either. But I am surprised that the fact of finding himself so much in agreement with me on the main point of my remarks—namely, the desirability of reducing the gauge of bricks—did not suggest to the writer of your article that perhaps, after all, I might not be so bad a judge of the needs of the Indian brickmaking craft as his haste to include me in the category of those who hanker after gauged brickwork and “carefully kept perpend,” and who can see no beauty in decided “texture” of wall surface, is apparently intended to make me out.

I should also like to convey a hint that the architect here is not universally recognised as the supreme authority on building matters, and that he finds it quite hard enough to do a little good without having his opinions made light of by a paper like *The Architect*, which is fairly widely read in India. There are here plenty who are ready to use the spectacle of such professional disagreements to point the obvious conclusion that the architect’s advice is, after all, only a matter of opinion—“a matter of taste”—and so no more worthy of attention than the advice of anyone else who has had to do with building. There are plenty here who even regard it as presumption on the part of the architect to offer any opinion at all on such matters as materials and workmanship—a view which the tone of your article is calculated rather to support than otherwise.

It would be kinder, as well as perhaps wiser, in the interests of our profession were the home architectural papers to content themselves with supporting us wherein they may happen to find themselves in agreement with us, leaving us on all matters as to which they do not see eye to eye with us to the very considerable volume of hostile criticism, both covert and open, which is ever ready here to pour on us from those who mistakenly assume that our presence is inimical to their own “interests.”

JOHN BEGG, F.R.I.B.A.

Simla: October 16, 1913.

The Scapa Society.

SIR,—The letter in your last issue from Mr. Richardson Evans is interesting reading, and I have considerable sympathy with the views therein expressed; but we undoubtedly live in a commercial age. A pity, perhaps, that this is the case, and one cannot but wonder at all the suggestions which are made from time to time to establish the fact that the old term “that an Englishman’s house is his castle” promises to be a term of the distant past. Instead of denying a man’s right to use his land or building for advertising purposes, would it not be better to place a tax upon such sources of income, and, if found possible, insist that they should be of some artistic form? For instance, I shall never forget

that excellent poster of John Hassall’s for the Veritas mantle; again, Bovril’s “Alas! my poor brother.” I cannot see any objection to such announcements; on the contrary, many of them have appeared on places which have been improved by their appearance.—Yours, &c.,

November 3, 1913.

STOCKWELL.

The Industrious Apprentice.

SIR,—In last week’s congratulatory note recording the first award of the English Prix de Rome in Architecture to Mr. H. C. Bradshaw, you mention that this youthful winner acted in 1908 as “lantern and studio boy” to the Roscoe Professor of Architecture at Liverpool University.

May we take this as an instance of embryo genius, which has to make its own way before planting foot on the lowest rung of Fortune’s ladder? At least one young aspirant to architectural honours is apt occasionally to become downhearted when he sees the influence behind and the (apparently assured) financial outlook of most of his youthful competitors. At such depressed moments the happy possession of a public school accent and an account at a high-class tailor’s seem no small assets, certainly of greater prospective value than a readiness to study some sixteen hours a day on meagre diet.

The Stage, the Services, and Commerce offer numerous illustrations of a lightning ascent from the very lowest to the highest grade, and the fortunate ones are by no means unwilling to recount the story of their success. A book has even been published under the title of “Lives of Illustrious Shoemakers,” which records the careers of sixty cobblers who abandoned their lasts and became famous as sailors, poets, and editors. The Arts seem to have become less discriminating than they used to be. Nowadays, it would seem, one must be born to greatness, for it will never be thrust upon one. Youthful genius in Peckham lodgings has a poor outlook, and he can barely view the far-distant winning-post which seems so close to Queen Anne’s Mansions or Bayswater.—Yours,

H. R. F.

The First User of Lithography.

SIR,—I suspect the remark in your interesting first “Note and Comment” in your last issue, in which you say *The Architect* was “the first journal in this country to make use of lithography” for its illustrations was a *lapsus calami*; and that you meant to say that from its first number in January 1868 *The Architect* used lithography.

The *Building News* commenced to use lithography in its issue of March 11, 1864. When I joined the *Building News* in March 1863 our illustrations were all wood engravings of fair quality. But the wood engraver’s reproductions of architectural detail were seldom facile or faithful, and partly at the suggestion of Mr. J. K. Colling, whose interesting series of articles on “Art Foliage” we were then commencing, we determined to try lithography for the illustrations thereof. The experiment was appreciated, and we soon ceased to use wood engraving altogether, in spite of the one drawback—the slower production necessitated by separate printing.

In 1857 we were the first to use photo-lithography; the great advantage, of course, was the facsimile reproduction of architects’ own drawings, without the intervention of the lithographer.

I think *The Architect* is entitled to claim the first facsimile reproduction of photographs and tinted drawings by the “ink-photo” process, whilst equally to the *Building News* amongst the architectural Press must credit be given for using the four-colour process for illustrations and advertisers.—Yours faithfully,

E. J. KIBBLEWHITE,

Editor of the *Building News*.

London: November 1, 1913.

DR. F. GRAY SMART, of Tunbridge Wells, left £446,819, so far as can at present be ascertained. Subject to certain charges, testator left his father’s residuary estate as to one-half, or £20,000, for the building, and £20,000 for the endowment, of almshouses at or near Scarborough, for the occupation of the upper and middle classes in reduced circumstances. He asked that the houses should be architecturally handsome, and not merely as many rooms as can be erected with money.

Callender's Dampcourses

have gained
First Place in Specifications
by reason of
Standard Quality,
and

Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from
GEORGE M. CALLENDER & CO., Ltd.
Contractors to Admiralty, War Office, Office of Works, L.C.C.
25 Victoria St., Westminster, S.W.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

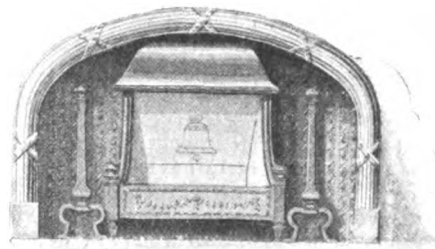
For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonald, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

**GOLD
MEDAL**

**"BELL" DOG
GRATES**



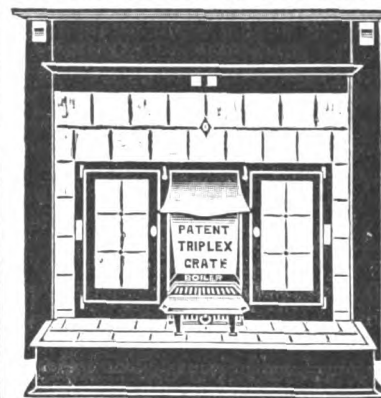
are in use in all parts of the world, and are giving absolute satisfaction everywhere; are sold under a guarantee that if they do not give perfect satisfaction to the user we will take them back, and refund the full amount paid.

Send for Lists and Testimonials.

**They will cure
Smoky
Chimneys.**

**BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.
And Northampton.**

THE "TRIPLEX" PATENT Combination SITTING ROOM GRATE

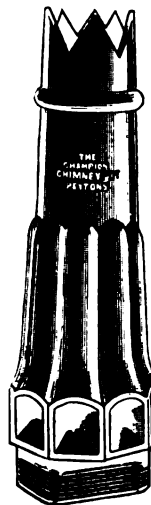


ONE FIRE does the work of the household.

You can cook in the ovens with the greatest ease. The bath water is heated very quickly, giving 2 hot baths per hour. The tiled front gives a smart appearance. No black-leading required. Entire absence of dust or dirt from the fire.

Complete Specification sent on application.

HORRELL & BOWMAN
Patentees & Manufacturers,
508-510 Moseley Road,
BIRMINGHAM.



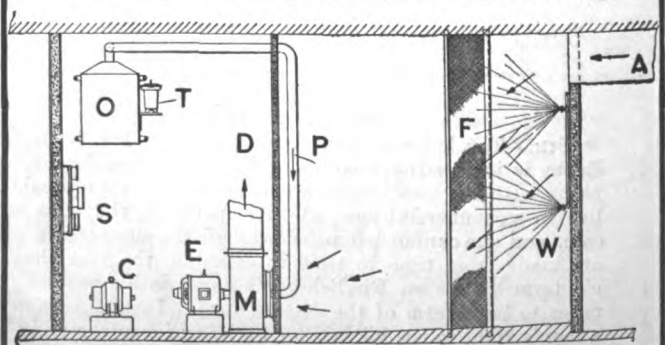
The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

THE OZONAIR SYSTEM OF PURE AIR VENTILATION



A—Fresh Air Inlet. E—Electric Motor. T—Transformer. W—Water Sprays.
S—Switchboard. C—Converter. F—Air Filter Screen. O—Ozone Generator.
D—Air Discharge. M—Mixing Chamber and Fan. P—Ozone Pipe.

Pamphlet No. 3 on application to **OZONAIR LTD., 96 Victoria St., London, S.W.**

The Architect.

CONTENTS.

	PAGE
The Outlook of Architecture	445
Notes and Comments	446
The Late Mr. John Belcher, R.A. (with Portrait)	447
Hints to Students on Sketching from Nature	447
St. George's Church, Benenden, Kent	448
Competition News	448
Illustrations :—	
New Front to Buckingham Palace	448
Cabinet in Oak	448
Lloyds Bank, Doncaster	448
The Architectural Association	449
Architectural Inlay (illustrated)	452
The Society of Architects	454
The Cottage Problem	457
Portraits by British Artists at the French Galleries	458
S. Sophia and its Dome (illustrated)	459
Detail from House at Christiania (illustrations)	461
Supply of Goods to Architect's Order	461
Building Progress in the Provinces	463
British Patent Specifications	467
Correspondence	467

FORTHCOMING EVENTS.

Monday, November 17.

Royal Institute of British Architects : Paper entitled "The New Wesleyan Hall, Westminster," by Mr. H. V. Lancaster, F.R.I.B.A., at 8 P.M.
Institute of Sanitary Engineers : Paper entitled "Problems in Connection with the Scavenging of Towns," by Mr. F. W. Cable, A.M.I.C.E., at 8 P.M.

Tuesday, November 18.

Illuminating Engineering Society : A meeting at 8 P.M.

Wednesday, November 19.

Society of Architects : A Concert of Chamber Music, at 8 P.M.

Thursday, November 20.

Architectural Association : Conversazione, at 8 P.M.
Co-Partnership Tenants, Ltd. : 6th Anniversary Dinner at the Connaught Rooms, Kingsway, W.C., at 7.30 P.M.

Friday, November 21.

Royal Sanitary Institute : Provincial Sessional Meeting at Swansea (two days).

THE OUTLOOK OF ARCHITECTURE.

THE views of the latest of our critics having been found to be erroneous, we may follow Mr. Blomfield's presidential address in the consideration of the present position and the future prospects of the art. There is no gainsaying the fact, for it is historical truth, that we are at the end of 150 years of eclecticism, but we think that it is very far from true that we are at the end of that particular phase of architectural design which has dominated the last century and a half. Eclecticism to a very considerable degree still remains amongst us, and must, we fancy, continue to do so, since we are all nowadays constrained to attain a wide knowledge of all the various phases, as well as epochs, of architectural history.

The modern increase of the public interest in architecture which undoubtedly exists, necessarily in the present state of art education refers very largely to the past history of architecture, and it will be a long time—if, indeed, the time ever arrives—when the layman and the amateur are able to consider what architecture is without persistent reference to what it was. Those who, by the aid of university extension lectures and popular books on architecture, have come to know something of the art always, when they come in contact with the work of the present, demand to know in what style it is.

Partly, no doubt, this is due to the character of the instruction which they have received, which appears rather to be illustrative of past examples than descriptive of the particular artistic qualities which the buildings illustrated possess. Magic-lantern slides in the lectures and numerous photographs in the books constitute the major part of the popular element in the information about architecture offered to the lay public. We may, perhaps, regard this as necessary in dealing with those who are at present absolutely ignorant of architecture, and as long as this state of affairs continues it will be necessary for architects to be at least as well informed in regard to the history of the past and the distinction of the styles as their clients and those of the general public who profess an interest in architecture, and, in their own view, possess some knowledge of its achievements.

Architects must therefore at the present study widely the history and the detail of all past phases of architecture. It would be hopeless for any architect to expect his friends and acquaintances to regard him as properly educated if he confined his study only to the work of

some particular past or present period on which he intended to base his own work in the future, and here we regard it as a mistake that, in the present scheme of the examinations of the Royal Institute, the study of mediæval architecture is apparently positively discouraged, at any rate to such an extent that it appears possible that a student might prove himself qualified for election as an Associate without having any greater knowledge of Gothic architecture than is possessed by any country parson.

As, therefore, a knowledge of ancient detail must of necessity be universally acquired by the modern architect it almost inevitably follows that in his own work he will be more especially drawn to one particular phase. Mr. Blomfield himself is an example of the truth of this proposition. His work is so evidently based—we will not say entirely—but certainly to a very wide extent, on the tradition of our English Renaissance, in spite of the wide scholarship which we all know him to possess, that it is clearly obvious, although perhaps he would have it otherwise, that other men will be drawn by a sympathy with, let us say, the Italian Baroco, to base their work upon some different period than that which the President himself finds most in sympathy with his need for expression. The idea, therefore, that there will ever be in modern architecture a "standard manner which is essential to the appearance of any such vernacular art as existed in civilised Europe in the first half of the eighteenth century" is, we fear, but a dream of Utopia. Indeed, we recognise that Mr. Blomfield, in spite of his desire for such a standard manner, is forced to the conclusion that it is far more likely that we shall continue to have "varying versions of Classic all worth taking seriously."

At the present time there are certainly manifestations of a leaning towards Roman Classic on the one hand, and Greek Classic on the other, the former predominating in the United States, the latter in so much of our own architecture as is connected with the design of public buildings. In the sense that we shall probably never again find an universal standard manner, at least as regards detail, the architecture of the future will remain eclectic.

There is also this tendency about modern architecture, that in a natural desire for progress we are all apt to lean too readily towards change. Our critics, like Mr. March Phillipps, profess to wish us to do something better than we are doing at present, and they can see no other

way by which we can do something better than by doing something very different. So amongst architects themselves the innate desire for advancement is too apt to lead into the apparently easy path of the adoption of a fresh kind of detail. Hence the Neo-Greek movement amongst our competition experts. As Mr. Blomfield well pointed out, there is, however, no need for violent diversion. By slow and steady steps we can progress to a higher level of performance by small and gradual improvements on the work of our predecessors and ourselves.

We are pleased to think that, apart altogether from questions of detail—or, shall we say, of language—there is an advance going on in modern architecture in respect of the higher qualities of the art. Whilst the Gothic tradition still remains to a very large extent paramount in respect to domestic architecture wherein, except in the case of the largest mansions, homeliness and picturesqueness are intuitively felt to be of higher consequence than grandeur and dignity, in all the greater works of architecture the value of regularity, of symmetry, and dignified composition are recognised more and more as of supreme importance.

Although our modern work may be, to a very notable extent, based upon some form or other of Classic as regards its vocabulary, it is remarkable that universally freedom and flexibility of treatment form the dominant characteristic, and this is combined with the axial planning, regularity, and symmetry that make for dignity. Even in the Continental architecture of modern Europe we find that the new art endeavour—whether of the Teutonic or the Latin nations—to steer clear of the detail of the past, is nevertheless combined with those essential characteristics of present-day architecture that are in our own country dominant in the treatment of various phases of Classic detail—freedom and flexibility combined with regularity and dignity.

NOTES AND COMMENTS.

It was to be expected that Mr. March Phillipps would take an early opportunity of replying, in the columns of the *Morning Post*, to the presidential address of Mr. Blomfield, and in so doing he merely reiterates the falsity of the hypotheses on which his criticism of modern architecture is based. In his attempt to exalt the identification of Gothic architecture with creative construction and Classic with imitative, Mr. Phillipps looks at the two from entirely different points of view. He quite rightly says that "Gothic art as a whole, and Gothic architecture in particular, whatever its defects might be, was a product of the creative spirit unconsciously casting the aspirations and emotions of its age into stone. It seems almost impossible to me that anyone can question this. It is not only that the ribbed vaults and quivering spires of a mediæval cathedral incarnate the very spirit of mediæval piety, but that every detail and bit of sculptured ornament illustrating the dreams and daily labours of the common people combine to turn the whole fabric into a facsimile of the life of that age." But when he comes to regard Classic architecture, he is entirely obsessed with what he conceives to be the imitative use of certain forms of detail. He devotes his whole armoury of vituperation against these alone. "Classic pediments and pilasters, Classic friezes and architraves, Classic acanthus leaves and wreaths and vases, what are they all, together with the affectation of intellectual lucidity which presides over their combination, if not imitative? The distinction between the two, between our Gothic and our Classic, is in this respect fundamental and radical, and the terms creative and imitative ought to indicate its nature clearly enough." Even in respect of the so-called "imitative" use of detail, he is apparently unaware of the difference between the details of Palladio and Inigo Jones and between both of these and those of Hawksmoor and Gibbs. Apart altogether from their clothing of classically de-

rived detail, can Mr. Phillipps conscientiously assert that there is no creative construction in St. Paul's Cathedral, Hampton Court Palace, St. Stephen's, Walbrook, or the Radcliffe Library, or—not to mention the work of living architects, but still of our most recent productions—in the late Mr. John Belcher's Colchester Town Hall, the memorial in Ashton Park, Lancaster, or Whiteley's new stores? It will be noted that one particular in which Mr. Phillipps sees superiority in mediæval architecture is that it contains "sculptured ornament illustrating the dreams and daily labours of the common people." To render such practice acceptable to-day, we must revert to the conditions of life of the Middle Ages, when there was no *Morning Post*, no illustrated magazines, no cinematograph, when churches and cathedrals were the only picture and sculpture galleries to which "the common people" had access. Will Mr. Phillipps kindly effect such reversion for the sake of modern architecture?

It is gratifying to see that the importance for a statue of a suitable basis is being recognised by the Office of Works in arranging for the permanent position of M. Rodin's bronze statuary group of "The Burghers of Calais," which is to be placed in the Victoria Tower Gardens in close vicinity to the House of Lords. The many elements that go to a satisfactory environment of a piece of sculpture are almost impossible to estimate, except by a process of "offering up," such as is now being tried.

We are completely in accord with the campaign against the present-day tendency to substitute corrugated iron for the far better materials of thatch, tile, or even slate in the roofing of farm buildings and cottages. In a pamphlet addressed "To Lovers of English Rural Scenery, Landowners, Stockbreeders, and others," reprehension of the ruinous effect of corrugated iron on the beauty of the country-side is backed by telling evidence of its unsuitability both on the ground of ultimate cost and inefficiency. A corrugated-iron roof costs less to put up than more satisfactory material, it is true, but its life is appallingly short, and its speedy renewal in the long run entails greater expenditure than tile or even thatch.

Some dissatisfaction has been aroused in Birmingham as to the increase of cost over the original expectation of the Council House extension, but it appears that this is due rather to the exclusion of unavoidable items in the first calculations. Buildings cannot be erected without incurring the cost of fittings and furniture, payment of fees to architects, surveyors, and clerks of works, and no definite calculations seem to have been made of these items. Commenting on a report of the General Purposes Committee, the Finance Committee point out that allowing thirty years' repayment for the extra cost of buildings, twenty years for the fittings, and ten years for the cost of furnishing, the annual charges on the excess expenditure will be about £5,000 (which has yet to be charged against the departments concerned) in addition to the annual charge of £9,500 on the loans already sanctioned, this last-named sum having been apportioned, by way of rental, amongst the various departments accommodated. The Council have not hitherto had before them any statement of cost which included fittings, furniture, architects' and surveyors' fees, clerk of works' salary, and incidentals, but the General Purposes Committee point out that they have reminded the Council in various reports that these expenses would in due course be incurred, without assigning any definite sums to them. These items, therefore, as the statements of accounts show, account for nearly £60,000 out of the sum of £66,156 now sought to be borrowed.

The Finance Committee are of opinion that it would have been better if the Council had been informed more

fully from time to time of the extent to which they were being committed financially in the matter of fittings, furniture, &c., and would suggest that in future the Council should be furnished with figures giving the best estimates of the total capital outlay to be involved in schemes of this kind, and should not depart from No. 6 of the Council's general instructions to committees, which reads as follows:—"Not to expend money on capital account, even when authorised by the Council, until the sanction of the sanctioning authority has been obtained, except in cases of emergency."

There can be no doubt we think that as an advertisement for the Overseas Dominions, the Aldwych site in the Strand is a far better location than any position in the city of Westminster. We therefore can quite sympathise with those Anglo-Canadian firms and others interested in Canadian affairs who cabled to Mr. Borden, Prime Minister of Canada:

"We, the undersigned, who are all greatly interested in Canadian affairs, have heard with alarm a rumour that there is a proposal before the Dominion Government to acquire a site at Westminster for the permanent offices of the Dominion in this country. We respectfully beg to point out that there is no site in Westminster or elsewhere in the Metropolis that can be compared with the Aldwych site in the Strand for the purpose. To all business men in this country engaged in furthering the commercial and financial prosperity of the Dominion, the Aldwych site is by far the most convenient that can be obtained, and at the same time it is in our opinion the best for most effectively advertising the magnificent resources and products of Canada and the unrivalled opportunities which the Dominion affords to the settler and for the investment of capital."

The current number of *The Connoisseur* is to us of even more than usual interest. An article on "London in the works of Canaletto and Scott," by E. Beresford Chancellor, contains illustrations from the works of these artists which throw light on the architecture of their time. Mr. J. Starkie Gardner's article "On some Personal Relics of Henry VIII." is valuable not only for the information in its letterpress, but also for reproductions of original drawings by Holbein. Of more widely spread attraction will be the descriptive notes and coloured plates dealing with the Talbot Hughes collection of costumes to be exhibited at Messrs. Harrods before being sent for permanent display to the Victoria and Albert Museum.

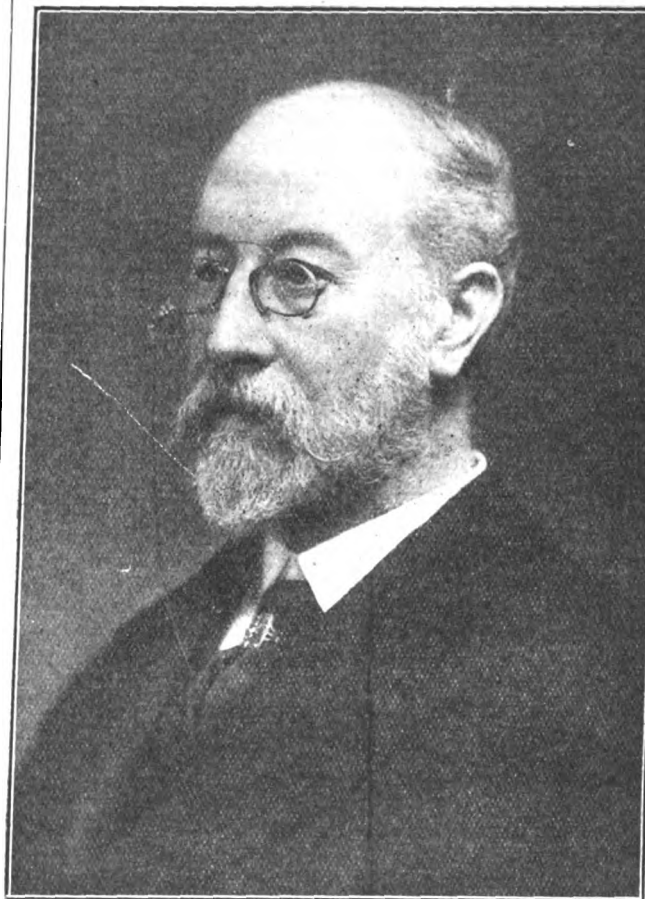
THE LATE MR. JOHN BELCHER, R.A.

WE regret to have to record the death of Mr. John Belcher, R.A., which took place at his residence, Redholm, Champion Hill, last Saturday.

Mr. Belcher, who was about 70 years of age, was descended from a family of architects who practised for many years at Adelaide Place, London Bridge. He was elected an Associate of the Royal Institute of British Architects in 1869 and a Fellow in 1882, and was President of that Institute from 1904 to 1906, presiding during his term of office over the seventh International Congress of Architects in 1906. In the following year he was the Royal Gold Medallist. He was elected an Associate of the Royal Academy in 1900, and a Royal Academician in 1909. Mr. Belcher was also a member of the Phœbe Hearst University of San Francisco.

In his earliest work he was greatly influenced by that of the leaders of the Gothic revival, but in his more mature development he struck out a line for himself in a free and flexible treatment of the later phases of the Italian Renaissance. The Institute of Chartered Accountants may be regarded as epoch-making in his career,

whilst the Ashton Memorial at Lancaster must in any fair view of modern architecture be ever regarded as a remarkable achievement. His later work as instanced in Electra House, Finsbury, the offices of the Royal Insurance Company at the corner of St. James's Street and Piccadilly, and Whiteley's premises in Queen's Road, Bayswater, show his forcible originality in the handling of detail, his mastery of composition, and his feeling for grace and proportion. He was one of the earliest among



[Photo by Elliott & Fry.]

modern architects to call to his aid sculptors in the decoration of public buildings, and Mr. Hamo Thornycroft, R.A., and the late Mr. H. Bates, R.A., were associated with him in this manner. Many churches and country houses were designed by him, and these, like all his work, are distinguished by individuality. As President of the Royal Institute at a rather stormy period, he was distinguished for his tact and affability and gained the respect and esteem even of those who did not entirely agree with his views.

HINTS TO STUDENTS ON SKETCHING FROM NATURE.

By SIDNEY HEATH.

THE great encouragement and the substantial prizes offered to the architectural student by the Editor of *The Architect* for drawings of various kinds leads one to suppose that a few hints and suggestions on sketching from nature may be acceptable in these columns.

The prevalence, and to some extent the excellence, of the modern photograph, is no criterion of its value, or non-value, to the artist. The student of architecture will find that one carefully executed drawing of an old building will tell him more about its constructional properties than a hundred photographs. Photography has its uses, but it is not, and never can be, "art" in the true and proper meaning of that term. How can "human personality" be displayed by a photograph? It is this quality of personality that illuminates and ennobles the slightest sketches of the great masters from Turner to the late Sir Alfred East.

The poverty of a photograph is made apparent when contrasted with the educational influence of a drawing. The power to see things beautiful in line, tone, and colour belongs to the trained human eye, and not to the photographic lens. Art is certainly long, but the camera will not shorten the road the successful sketcher from nature has to tread.

The selection of the vital essentials of any kind of composition can only be fostered by sketching from nature, from an actual study of the building or the scene to be drawn.

The persevering student can undoubtedly arrive at the power of giving to objects that beautiful "relative position" which they hold to each other in nature; and it is just this relative position of things that gives charm and completeness to the least ambitious of drawings. The value of out-of-door work to the building architect cannot be over-estimated, for the eye learns to see what it is trained to see, and artistic perception is beyond the powers of untrained vision. The greatest result, however, of the practice of sketching is that, by throwing the observer on his own resources, it develops his individuality and gives to his work that personality which is as necessary to a slight study of a gable as to the largest work in oils.

As the architectural student will be already familiar with the materials that suit him best, nothing need be said of those here. If doing a pen-and-ink drawing, the whole should be finished on the spot, or at any rate carried so far that only the merest details are left for filling in later. It is only by completing the sketch on the spot, whatever the medium adopted, that individuality of style can be acquired. The student who does a pencil drawing of a building, and takes it home to be finished at leisure in the "Railton" or "Pennell" manner, is ruining his chances of developing "style," and is indeed crippling his own natural gifts. One ounce of individuality is worth more than the cleverest copy of the work of a great draughtsman, for the student will pick up all the big man's faults and mannerisms, but none of his artistic virtues. These always elude the slavish imitator. By individuality of style is meant a perfectly natural personal expression in line or colour of the object represented.

These brief notes may close with a few hints to the sketcher who prefers water-colour and wash to pen and pencil.

The principal thing for the student to remember is that, after correct drawing, "tone" is the most important quality to strive for. If the tones are correct in value, the colour will take care of itself. Another thing to be noted is that shadows are always warm near the object by which they are cast, and they become cooler as they approach the light. To this rule there is no exception. The most frequent fault in students' water-colour work is the habit of forcing the tone of the high lights, and the neglect of reflected lights. Few people realise that well-painted reflected lights convey a truer idea of sunlight than the forcing of high lights. The student who can depict correctly the subtle tones and colour of high and reflected lights has attained a mastery over his material that it took Corot twenty years of laborious seeking to acquire. In conclusion, the student who would become something more than a correct delineator should strive continually for three things—drawing, tones, and values—and it may be said of sketching from nature as of other things, "*Hæc triæ sunt omnia.*"

ST. GEORGE'S CHURCH, BENENDEN, KENT.

THE ancient chapel at the east end of the south aisle of St. George's Church, Benenden, has, during the last three months, been undergoing a careful restoration. The Viscountess Goschen lately offered to restore the chapel as a memorial to her sisters. Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., of Westminster, was consulted, and prepared the necessary designs for the restoration. The old seats have been removed, and the chapel has been refloored to its original levels. The new Communicants' and Altar steps are of white Sicilian marble, and the paving of the sanctuary is of polished light and dark green, grey, and white marble. The central passage is of similar material, while the flooring under the chairs, now facing east, is formed of oak blocks. An inlaid and polished marble Altar is placed in a central position under the east window, and is surmounted by a blue and gold damask dossal and hangings.

The lower part of the walls is covered with carved oak panelling, and oak parclose screens fill the two arches between

the chapel and the chancel. Oak clergy stalls are placed on either side of the sanctuary. The restored chapel was dedicated on Friday, October 31, by the vicar, the Rev. W. H. Noble. The oak work throughout has been carried out by Messrs. H. H. Martyn & Co., of Cheltenham, and the marble work by Mr. H. C. Tanner, of 18 Campbell Road, Hanwell.

COMPETITION NEWS.

COVENTRY.—Members of the Society of Architects are advised that the conditions of the Coventry Technical Institute competition are at present unsatisfactory in certain respects, and that efforts are being made to have the conditions amended.

MANCHESTER.—The Freemasons of the Province of East Lancashire invite applications before the 22nd inst. from architects willing to submit competitive designs for a Masonic Hall, &c., proposed to be erected in Bridge Street. From the applicants a limited number will be asked to compete. Further particulars will be found in our advertisement column.

ST. ANNES-ON-THE-SEA.—The Urban District Council are prepared to receive, not later than the 22nd inst, the names of landscape gardeners or other persons desirous of entering for the undermentioned competitions, from which a limited number will be selected—namely, (1) Laying out St. George's Gardens as ornamental pleasure and recreation grounds and the provision of a pavilion and an open-air bandstand, &c., therein; (2) laying out of the beach and foreshore, and providing for open-air sea-water baths and marine lake, &c. Premiums of £50 and £25 are offered for each competition, the selected plans to become the sole property of the Council, but the acceptance of any plan does not necessarily entail the carrying out of the work by the successful competitor.

SUNDERLAND.—Mr. George T. Brown, F.R.I.B.A., F.S.I., has been awarded first place in the competition for designs for a Day Training College and hostel. The Town Council propose to erect the building on the Hylton Road site at an estimated cost of £21,000. The competition was restricted to local architects, of whom twelve took part. Mr. P. S. Worthington, F.R.I.B.A., of Manchester, acted as assessor.

ILLUSTRATIONS.

NEW FRONT TO BUCKINGHAM PALACE.

WE illustrate the new front to Buckingham Palace, as completed from the designs of Sir Aston Webb, C.B., C.V.O., R.A. In any estimation of the merits or defects of the design it must be remembered that Sir Aston was fettered by the necessity of rigid adherence to the existing window openings. Our view of the work in progress is interesting as a record of the organisation that rendered possible the completion of the work in record time by Messrs. Leslie & Co., who made use of every device for saving time, and who give credit for rapidity in the erection of scaffolding to "Scaffixer" scaffold ties, which were supplied to them by the Patent Scaffold Tie Co., Ltd. The numerous powerful cranes and a couple of electric lifts supplied by Messrs. Waygood & Co. were essential elements in the operations.

CABINET IN OAK.

THE decoration of this cabinet is based on the story of the Golden Fleece and the enchantment of Medea, and is the work of Mr. Mark Rogers, R.B.S. The carved round centre panel has the figure of "Jason"—

"Proud to possess the purchase of his toil,
Proud of his royal bride, the richer spoil."

Ovid's "Metamorphoses," Book vii., 233, 234, and the side panels contain medallions of "Medea" and "Æson."

LLOYDS BANK AT DONCASTER.

OUR illustrations show exterior and interior views of one of a series of banks erected for Messrs. Lloyds, from the designs of Mr. Sydney D. Kitson, M.A., F.R.I.B.A.

The photograph from which our illustration of a mausoleum in Putney Vale Cemetery in last week's issue was reproduced should have been credited to Messrs. Bedford Lemere & Co.

THE ARCHITECTURAL ASSOCIATION.

An ordinary general meeting of the Architectural Association was held at 18 Tufton Street, S.W., on Monday last, the 10th inst. Mr. W. Curtis Green, F.R.I.B.A., the President, occupied the chair.

Mr. H. Austen Hall, F.R.I.B.A. (Vice-President), proposed the adoption of the Council's report and balance-sheet for session 1912-13, as published in the A.A. Brown Book. This was seconded by Mr. Percy May, and was carried.

Mr. G. Leonard Elkington, A.R.I.B.A. (Hon. Secretary), announced that the annual conversazione will be held at 18 Tufton Street on Nov. 20, at 8 p.m., when there will be an exhibition of architects' holiday sketches, painted work, and furniture by architects, old pewter, &c. Additional tickets may be obtained from the Secretary.

Forty candidates whose names had been nominated at a previous meeting were elected.

Mr. Curtis Green said he had been told on coming into the room of the death of Mr. John Belcher, R.A. He felt sure the members would wish a letter of condolence to be sent the relatives of Mr. Belcher, who was a member of their School of Architecture Advisory Council and a distinguished member of the profession.

Mr. H. M. Fletcher, F.R.I.B.A., then read the following paper on

Nationality in Art.

We are a body of architects. Whether already practising or as yet only learning our art, every one of us is and will be for the term of his natural life a student of architecture, and so, naturally enough, our discussions centre mainly upon technical matters, the substance of our daily thought and our daily work. They keep us in touch with reality, and in them is room enough for difference of opinion and the clash of minds. It is vital to us as architects to know what we think, or think we think, about the influence of materials on design, the ventilation of workhouse wards, the profiles of the Parthenon mouldings, the relative positions of the larder window and the fresh-air inlet to the drain. An architect has so much to learn in so short a life that he is apt to fear lest the consideration of subjects not directly bearing on his work be a waste of precious hours. But there may, after all, be something gained by the exploration of such abstract questions as that which I venture to bring before you this evening. I mean, that it may result in the establishment of principles, whereas technical discussions can hardly go beyond the laying down of rules. Grasp the broad principles, whether of an art or of art itself or of life itself, and you can make your own rules, or, better still, can do without them. Rules are cramping, principles are liberating. Rules are particular, and may even, outside their own sphere of influence, be misleading; principles are universal and obtain in every branch of human endeavour, so I will not apologise for asking you to give an evening to the consideration of what may seem a vague and non-architectural subject.

To begin with, let us try to be sure what we are talking about. "Nationality" is pretty clear, so we will leave it at that. But "art"—ye gods, what is art? Where Tolstoy and Ruskin and a hundred philosophers of aesthetics have failed to define, how shall we hope for success? I think we must be content, instead of defining, to adopt some limited meaning for this evening's discussion only, and leave the general question on one side. Indeed, the word "art" is a dreadful word by this time—is it not?—carrying with it the associations of so much loose thinking and fluffy chatter that I believe the world would benefit if it were cut out of the vocabulary of all civilisations for a season of thirty years. During that time other expressions would have been appropriated to most of the outlying ideas now lazily raked together under the general term "art," and the word itself could, with some reasonable hope of lucidity, be reinstated for the otherwise inexpressible residue. In the meanwhile we must put up with it and use it as seldom as we may.

For present purposes, then, let us define it as "imaginative work." I know that, if we chose, this definition would launch us on the equally stupendous inquiry, "What is imagination?" But, with your leave, we will not so choose. The treatment of tangible materials—paint and canvas, marble, glass, stone, wood, lead, plaster and the like—if it is to have any value, must be inspired by imagination or a power of commune with the unseen, which, in its lowest terms, is a power of conceiving final results before work is begun. But in considering the effect of nationality upon such treatment it will not hinder us, and may be helpful,

if we throw our net wider and include the treatment of the intangible in literature and music, to see if these also are not affected by racial environment. That is why I ask for a definition of "art" no less comprehensive than "imaginative work." Indeed, we might go further. Stevenson, writing on Velasquez, asserts temptingly that "technique is art," and certainly technique is the first essential of art. If we adopt this maxim we might make "art" co-extensive with "human work," "human" being taken to imply "purposeful," as contrasted with the repetitive work of a machine or the instinctive work of birds and animals; for, although the faculties brought into play the media or materials acted upon—and the ends in view may be widely different in different departments of human endeavour, as, for instance, the painting of a fresco, a difficult surgical operation, the drafting of an international treaty, the conception of a new town plan—yet if you take a broad view of life these differences are not vital. Have the ends to be attained been kept resolutely in view from start to finish, the media or materials applied in the fittest manner for the attainment of those ends, and the faculties of the worker concentrated to the utmost of his power upon those media or materials? Here are the really vital questions. If these conditions have been fulfilled, whatever be the affair in hand, be it fresco, operation, treaty, or town plan, the result will be in a sense a work of art, a piece of masterly craftsmanship; and there is more spiritual kinship between the great painter (the artist, that is, in the narrower sense of the phrase) and the great surgeon, the great diplomatist, the great town-planner—in a word, the leaders, the men who know their job in all branches of activity—than between the same artist and the men who are doing futile work in his own line. It is the first-rateness that produces kinship, not the occupation.

For one who is sensitive to quality it takes little experience in any department of human work to recognise when he is in the presence of something first-rate. You know the feeling—an impulse to catch and hold the breath while you watch how it is going to work out; a sense of the difficulty of the undertaking; a feeling that one false step may mar everything, then a growing confidence in the easy mastery of the performer; a thrill of silent delight from the depths of your being at the perfect fitness of means to end; the almost unconscious realisation that what you contemplate is taking the very shape, and no other, that it ought to take; and, as a final conclusion, a perception of the infinite sweep and power of spirit over matter. Even where the subject is solemn or tragic, to those whose keenest interest is reserved for treatment the emotion aroused by meet handling is far nearer to delight than to pain, and Othello, Keats's three or four most perfect odes, certain essays of Bacon that seem to contain the distillation of all wisdom in a page and a half, the glass at Chartres, Karsovin's dancing, Wren's houses at Chichester and Salisbury, Beethoven's "Coriolanus" overture, the silk painting of Chinese geese at the British Museum, different in scale and importance and mutually incomparable as they may seem, do yet, to use a vulgarism, all "get there" alike, do all rouse that delighted recognition by doing what they set out to do so fully and concisely that you cannot conceive it so well done in any other way.

Now, this rare quality of inevitableness, of perfect fit, of saying exactly what you want to say, can only be attained by a large gift of selection and rejection exercised upon many similar but slightly varying alternatives, and the power of justly weighing the values of these alternatives depends upon a familiarity dating back beyond the days of special training into childhood itself, and therefore working in accordance with racial bent or nationality. This is seen most clearly, of course, in the case of literature, where the words, the very tools which the artist uses, are entirely different according to his nationality. In the French translator's introduction to Tolstoy's "What is Art?" there is an interesting passage which bears on this point. Tolstoy insists that only those works of art can be called great whose appeal is universal. He practically reduces it when he comes to detail to "The Story of Joseph," and the translator protests:—

"There is another objection which I cannot help very respectfully putting to Count Tolstoy and also to his French readers. He tells us himself that, although universality must be the mark of true art, 'yet the finest oration, spoken in Chinese, will remain unintelligible to one who does not know Chinese.' And elsewhere he admits that the artistic worth of a work of art abides neither in its substance nor

in its form, but in a perfect harmony of form and substance. Now, this being so, I am persuaded that, even if I knew Chinese, the true artistic worth of a Chinese oration would remain beyond my understanding. I should understand its substance, or rather I might suppose I understood it, but this very substance could be truly understood only by virtue of its harmony with the form; and this harmony would always escape me because, not being Chinese, being able to think and feel only in French, I should be without the power of understanding the form of the Chinese phrases. To judge of the mutual agreement of substance and form in a literary work, to estimate its artistic worth, you must be accustomed not only to understand the language in which it is written, but also to think and feel in that language. I am willing enough to agree to Count Tolstoy's dictum that the ideal of art is universality; but for literature, at all events, until Volapük has driven out the languages of the different nations, the ideal of a universal language can never be anything but a chimera of a generous imagination."

The truth of this cannot be denied by anyone who is sensitive to form, and we can confirm it by an example from our own literature. Swinburne wrote poems in French, as well as in several other languages. A profound French scholar, a lord of language, with the most sensitive ear in the world, he must have been equipped for the task as no other Englishman in our history. What is the result? Frenchmen say that they could not tell that his French verse was not written by a Frenchman, but there is no magic in it. No magic! Now listen:

When the hounds of spring are on winter's traces,
The mother of months in meadow or plain
Fills the shadows and windy places
With lisp of leaves and ripple of rain.

How is it done? What is the secret of it?

Fills the shadows and windy places.

There is not a word in the line, or, for that matter, in the whole stanza, that a child might not use a hundred times a day, but a million children could not weave them into that incomparable texture of sound and rhythm. Genius, of course; but genius working on material so familiar as to give absolute mastery—working, that is, in concert with and not in contest against nationality. Using a foreign tongue, even Swinburne cannot work such a miracle as that, because he has not inborn, and can but laboriously and partially acquire, the instinct for the values of the words he uses, the labyrinth of subsidiary and related meanings they may suggest, the exact effect on the auditory nerves of sensitive hearers that different combinations of vowels and consonants will produce. And what is incontestably true, almost truistic, of literature is, I think, true in varying degrees of other arts. There are certain tuggings at the inmost fibres, stirrings of the heart-strings, which are and can be caused only by sights, sounds, thoughts, and ways so familiar that we have lost all sense of our first acquaintance with them; nay, more, that our familiarity is innate in us, arising from the familiarity of unnumbered generations of our fathers.

The Danish painter Hammershøe, on a visit to England, was fascinated by the fires he saw—the crackle, the glow, the life in the flames, the leaping and changing reflections on walls and ceiling. "Well," said his host, "you ought to study it, make pictures of it." "Oh, but I cannot," said he; "you see, I don't know it!" All the firelight he had known as a child was imprisoned in a blackleaded stove, with a dull glimmer through a talc door.

If we turn to music we shall hardly find one of the greater composers whose work is not markedly national. Innovators they have all been, working out their own means of expression and their own treatment to developments which lead them far from their fellows even of their own race, so that it needs no special gift for a lover of music to say without hesitation, "This is Chopin, that Schubert, or that Mozart." But always there is a definite national idiom or tang. Try to conceive "Carmen" or "Pagliacci" the work of a German, "Fidelio" or "Götterdämmerung" of a Frenchman or a Pole. The thing is absurd. You may say that the difference is one of scale and massiveness; even that, though, is a mark of nationality. But I think the question is one of more intimate detail than that, and arises from the very turns of phrase and rhythm in the themes they invent. The smallest lyric of Schumann's "Dichterliebe" or Schubert's "Müllerin" is as essentially German as "La donna è mobile" is Italian or Gounod's "Quand tu chantes" is French; and there is no distinction in scale among these

little songs. And when you come to ask why, I think you will find yourself in each case brought up against the imperceptible influences of childhood. A musical child is more sensitive than others to the very first tunes he hears—the old cradle songs, the popular music, the folk-melodies by which he is surrounded. Whatever the influences that sway him in his more sophisticated years, the music of his native race is always there in the background, forming his standard of what music really is, to which he unconsciously refers any later conceptions of what it might or should be. Even in the most complex of the moderns you can see it. Among the Eastern Europeans, such as Chopin, Dvorák, and Tschai-kovsky, it is patent, of course, to the most careless listener. But Richard Strauss's melodies also come down from the *Volkslieder* through Schubert and Brahms, and even in Debussy's strange tonality do we not catch the wail of Celtic France, the drone of the Breton bagpipe? As to this last, I speak under correction, and should welcome the criticism of any musician in the company. In Mozart alone perhaps do we find music that transcends all racial limitations and rises to the domain of the absolute.

It would be tedious to make a catalogue of all the arts in this way, but there may be some interest in recalling some of the most marked characteristics of the different races. We must leave the East on one side for to-night—the question is too large—and also the semi-Eastern, Slavonic, and Balkan peoples, who have only within the last century begun to make their mark upon the artistic history of the world. After all, the nations that count for most with us are the five great nations of Western Europe—Italy, Spain, France, Germany, and England—and I do not think it is too much to claim that they count for most, and will continue to count for most, with the world at large. The first broad division, and the one that goes deepest, is that of Latin and Teutonic, which, in artistic matters, corresponds persistently throughout the ages with the division between the classic and romantic ideals—the art that concerns itself with types and the art that concerns itself with individuals. In connection with art it may be that Greek would be a truer race-name for the Classic ideal than Latin, for Greece is the fountain-head. But, though the artistic impulse is Greek, the actual mixture of Grecian blood in these modern peoples is negligible, whereas the Roman descent is direct and clear. And on other sides of civilisation—law-giving, engineering, civil polity, and many others—Rome was so much of an originator, has stamped her mark so heavily on the Mediterranean States, that it is convenient and not inaccurate to keep to the usual term. In Greek art this Classic ideal, this searching for a type, is paramount. We see the Greeks possessed of the doctrine, most clearly expressed by Plato, that for each class of object in the world of sense there exists, in the realm of the absolute, the world of mind, a "type"—what Plato calls an "idea"—which manifests in the highest possible perfection all the qualities by whose possession individual objects of each class in the world of sense belong to that class; in a word, a pattern by their likeness to which individuals in that class approach perfection, and by their unlikeness exhibit a falling away. Thus an eagle is by so much the more an eagle as it approaches in every respect to the perfect likeness of the typical eagle, the "idea" of an eagle, and so with a chair, a horse, and what not, working up to what, in their eyes, was the most important matter of all a state. I do not mean that Greek artists in early times, or perhaps appreciably at any time, worked consciously under the sway of any such elaborated philosophical doctrine as this—it is not the way of artists or a sound basis for artistic production—but the formulation of the doctrine shows us what were the conceptions floating about in the society where it was formulated, and the general tendencies of the workers. Now it is clear that, if such was the tendency, it made not so much for the expression of strong individual characteristics as for the constant search after perfection, the effort more nearly to realise the ideal by means of improvements in detail on the imperfect realisations of former attempts. And this is accordingly what we find. The general form of the Doric temple was early decided upon, and from the rude beginnings at Corinth and Olympia—themselves only the stone derivatives of much earlier wooden originals—there is a constant advance by slight alterations, changes in the number of columns, refinements in their spacing and in the profile of mouldings, the substitution of curves for straight lines to correct optical illusions, greater delicacy and more exquisite placing of enrichments, till we reach the final glory of the Parthenon, the closest approach to the "idea" of the Doric temple

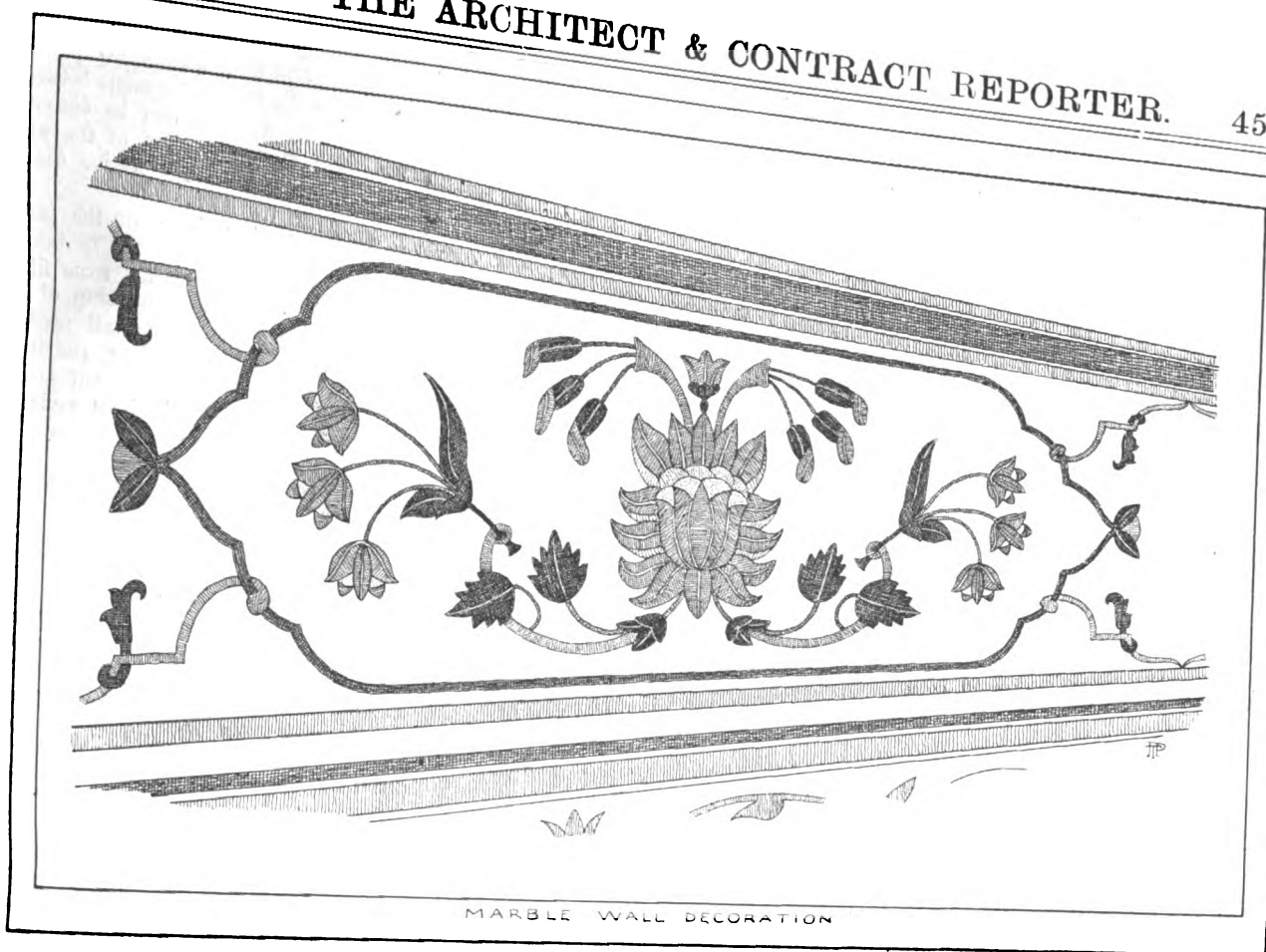


FIG. 3.—TAJ MAHAL, AGRA.

attainable by human imagination and handiwork. But through it all the original conception persists.

So with sculpture: you can watch the slow development, the gradual realisation of godhead from the grinning idols of the early age, step by step, line upon line, here a little, there a little, but without any violent break or marked change, up to the miraculous consummation of the Olympian Apollo and the Pheidias Athena.

And this preoccupation with the type, rather than with the individual or the peculiarity, is the hall-mark of the Classic or Latin school of art. Take French Gothic architecture. In the common acceptance "Gothic" is the antithesis of "Classic," but, though diluted with the Gaulish, Frankish, and Norman strains, in France the Latin genius tells clearly throughout. See the gradual development, by variation in detail rather than in conception, of the great cathedrals Notre Dame, Chartres, Amiens, Rheims. Contrast it with the almost wilful individualism of Wells, Salisbury, Winchester, Lincoln, so different one from the other, so experimental. The logical French mind early satisfied itself as to the most excellent method of covering a space, and you find the simple quadripartite vault persisting all through the Middle Ages, almost to the exclusion of other vaulting systems. Our individualist tendency leads us, having used this simple method once or twice, not to be content with exploring its further possibilities, but to wander off into something quite different, so we cover our vaults with a maze of subsidiary ribs, not so much for structural expression as in order to do something individual and different, until almost by happy accident they evolve themselves into a new structural method, the great fan vaults of Westminster, Windsor, and Cambridge. Again, the French decided that height was a virtue in a cathedral; and again you see the same gradual development from Notre Dame (110 ft.) and Chartres (106 ft.) to Rheims (125 ft.), Amiens (147 ft.), and the climax in Beauvais (157 ft.), where vaulting ambition at last "o'erleaped" itself. English builders, of course, did not aim at height, so that we can make no comparison of value here except to note, in general, how little reference, compared to the French, they made to what had gone before, striving rather to make each new building, and even each new part of a building, a fresh creation. Even the effect of length, which they undoubtedly valued, seems more often to have been got by accretion than of set purpose.

So it continues down to the present day. The great architectural school of the Beaux-Arts has continued in almost

unbroken progression and imperceptible change since its foundation by Richelieu—was it not? Whatever ideas it has imported, it has always translated into French. The Colonnade of the Louvre, the buildings in the Place de la Concorde are results of the Italian Renaissance, but they are as definitely French as distinct from contemporary Italian buildings as Amiens from Milan. The Gothic outburst of the nineteenth century was sporadic, and has practically disappeared, because it was outside the main line of development. We for the last hundred years have organised a series of piratical expeditions to Greece, mediæval France, Venice, Holland, Byzantium, and have brought home and hung the bleeding trophies all over our buildings in the shape of crude and untranslated details, forms, and decorations. The latest raid has been on the Beaux-Arts itself, and we see the usual result in an outcrop of steep roofs, zinc crestings, Greek profiles, and Union Jack glazing. The robber chieftains are waving the flag, as usual, like their predecessors, and calling out that they really have got the right thing at last. So did all the others, but they hadn't. Nothing is the right thing for us until you have translated it into the terms of its surroundings and made it English. In a dozen years the latest fashion will be what its conveyors probably call "vieux jeu." Look at Grosvenor Place and be warned in time.

Devotion to logic is, indeed, perhaps the leading note of the French genius. In literature it manifests itself in exquisite clearness, symmetry, conciseness—all the qualities that delight us in the best French prose. Read "Candide"; the merciless logic makes it a cure for too easy optimism that reminds you of the modern treatment of rheumatism by bee-stings. And this devotion to logic finds its outcome in conduct with a thoroughness impossible to the more good-humoured, less theoretical English nature. Recall the motor bandits who a year ago set up a reign of terror over half France. You feel aggrieved with society in general. You thereupon hire or steal a motor-car, surround yourself with all the newest explosives and scientific apparatus for destruction, and rush about the country, dealing death and annihilation broadcast on all the members of society who come in your way. Our race has never produced, and I doubt whether it can ever produce, so perfect a theoretical and practical logician. It seems a heavy price to pay for a high racial development of the reasoning faculties, but it is easy to recognise in it the temper of mind that built Beauvais.

(To be concluded.)

ARCHITECTURAL INLAY.—II.

By J. TAVENOR PERRY.

(Concluded from last week.)

THE story of the introduction of this art into India, where it became so important a feature in Mogul architecture, would be more interesting if we were better acquainted with the details. Marble mosaic work was well known in the nearer East as well as, to some extent, the art of marble inlay, as is shown by the beautiful fountain from Damascus in the Victoria and Albert Museum, which we may take to be a sample of those seen by the Bolognese traveller, Ludovico di Varthema, early in the sixteenth century, who speaks of the Damascus houses as having "very beautiful fountains of mosaic work." And we know, from the evidence of the Venetians who stole the body of St. Mark from Alexandria early in the ninth century, that the persecution of the Christians in Egypt mainly arose from a desire to rob the churches of their precious marbles. But although in India marble mosaic work was freely used in the earlier buildings of the Mogul dynasty, inlay makes its first appearance in Etimad-Doulah's tomb at Agra, 1615 to 1628, where it is used side by side with mosaic.

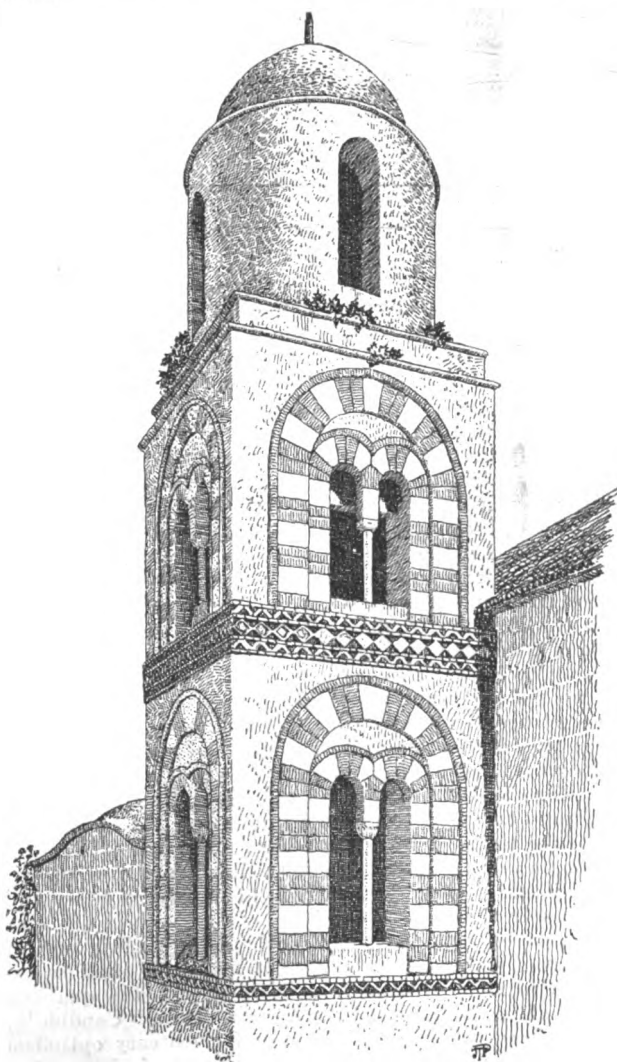


FIG. 4.—S. MARIA DE GRADILLO, RAVELLO.

How and under whose auspices Austin de Bordeaux and his companions, who were skilled in the manufacture of *pietra dura*, went to India and were introduced to the Court of Shah Jehan, we cannot tell, as contemporary travellers are silent on the subject; but the moment was propitious, and they seem to have been immediately employed in the great works on which the Emperor was at the time engaged. The well-known Orpheus, now at South Kensington, may have been a trial piece of Austin's; and the most important buildings on which he was set to work were the palaces of Delhi and Agra and, above all, the celebrated Taj Mahal. In this all the more important architectural details are heightened by being inlaid with agates, bloodstones, carnelians, and jasper, while on the

tombs of Shah Jehan and Muntaz-i-Mahal, below the dome, the richest material and most exquisite workmanship have been lavished, work so fine that no trace of cement between the marble surface and the inlaid stone can be detected with a magnifying glass. We give a portion of the wall decoration of the interior of the Taj from a native drawing (fig. 3).

There is a smaller building at Lahore in the same style, executed presumably by native artists, the imitators and successors of those from Florence, erected some fifty years later than the Taj Mahal; the workmanship of it is so minute that, although it is only a small marble pavilion, it cost £90,000, or nine lakhs of rupees, and it is hence called Naulakha. The art gradually died out under the later Mogul emperors, but has recently been revived, and under the name of the Inlaid work of Agra is now much used for furniture and ornaments.

Turning now from marble to an inferior though scarcely less effective material, we have to deal with the inlays of stone and tile which, much mixed up with other surface decoration, perhaps took its rise at Constantinople, and became common in Greek and Saracenic architecture; and by way of Sicily and South Italy reached the valley of the Rhone, and its culmination in the magnificent churches of Auvergne and its neighbourhood.

The work at the Hebdomon, Constantinople, consists principally of surface decoration in patterns of coloured brick, and seems to have suggested much of the ornamentation found on Greek churches, such as that of St. Nicodemus, Athens, or the one at Daphni, where inlaid tiles and bricks relieve the wall surfaces or the voussoirs of the arches. The likeness between this decoration and that on the semi-Saracenic churches of Sicily and the Principata is obvious, as can be seen by our illustration of the tower of the little church of Sta. Maria de Gradillo, Ravello, erected about 1050, probably by Siculo-Saracenic workmen (fig. 4).

With such examples almost at their doors, it is easy to understand whence the architects of South France derived their inspiration, and, with a wealth of coloured materials at their disposal, were able to elaborate a mode of decoration of a singularly graceful and harmonious character. Although the work of Auvergne, of Velay, and of the Lyonnais, all carried out by much the same means, is necessarily very similar, certain differences exist; and it does not at first sight appear easy to determine in which district it was first practised.

If legend were to be relied upon the earliest building displaying inlaid work would be the western tower of St. Martin d'Ainay, Lyons (fig. 5), but there seems no doubt that the date of the work is the first decade of the twelfth century. The inlay is of an extremely simple kind, being confined to tiles set diagonally in bands or round the architraves, or as a diaper in the blank arcades. The carved frieze of grotesque animals over the second stage is very similar to the work at Lucca already described, but the background does not appear ever to have been filled in with cement.

When we pass into the volcanic countries of Velay and Auvergne we find that, in consequence of the greater variety of the materials, the simple inlay of Lyons is much elaborated. Beside red tiles and bricks there was lava of tints varying from bluish or greenish grey to almost black, as well as a yellowish sandstone. The earliest building exhibiting these materials may be part of the cloisters of Le Puy Cathedral, where the arches are constructed with voussoirs of alternate tints and all the space above them covered with an inlay of tiles and lava. The west front of this Cathedral is built, in the main, of dark-tinted lava, but has the whole of the upper part decorated with diapers of stone and tiles and lava in bands. The date of this façade must be assigned to quite the end of the twelfth century, but the portal of St. Michel d'Aguilhe, in the same city, even more elaborately decorated, may be considerably earlier.

The most complete examples of this style of inlay are to be found only in Auvergne, and there it is almost confined to the exterior of the east end of the churches; and of these the two best known and most perfect are Notre-Dame du Port, Clermont-Ferrand, and St. Paul, Issoire. The illustration we give of this latter (fig. 6) will show at a glance the beauty of its tile and lava decorations; while that of the south transept gable of Notre-Dame du Port a great variety of combinations (fig. 7). These two churches, so far as this decoration is concerned, may belong to the last quarter of the twelfth century, and although

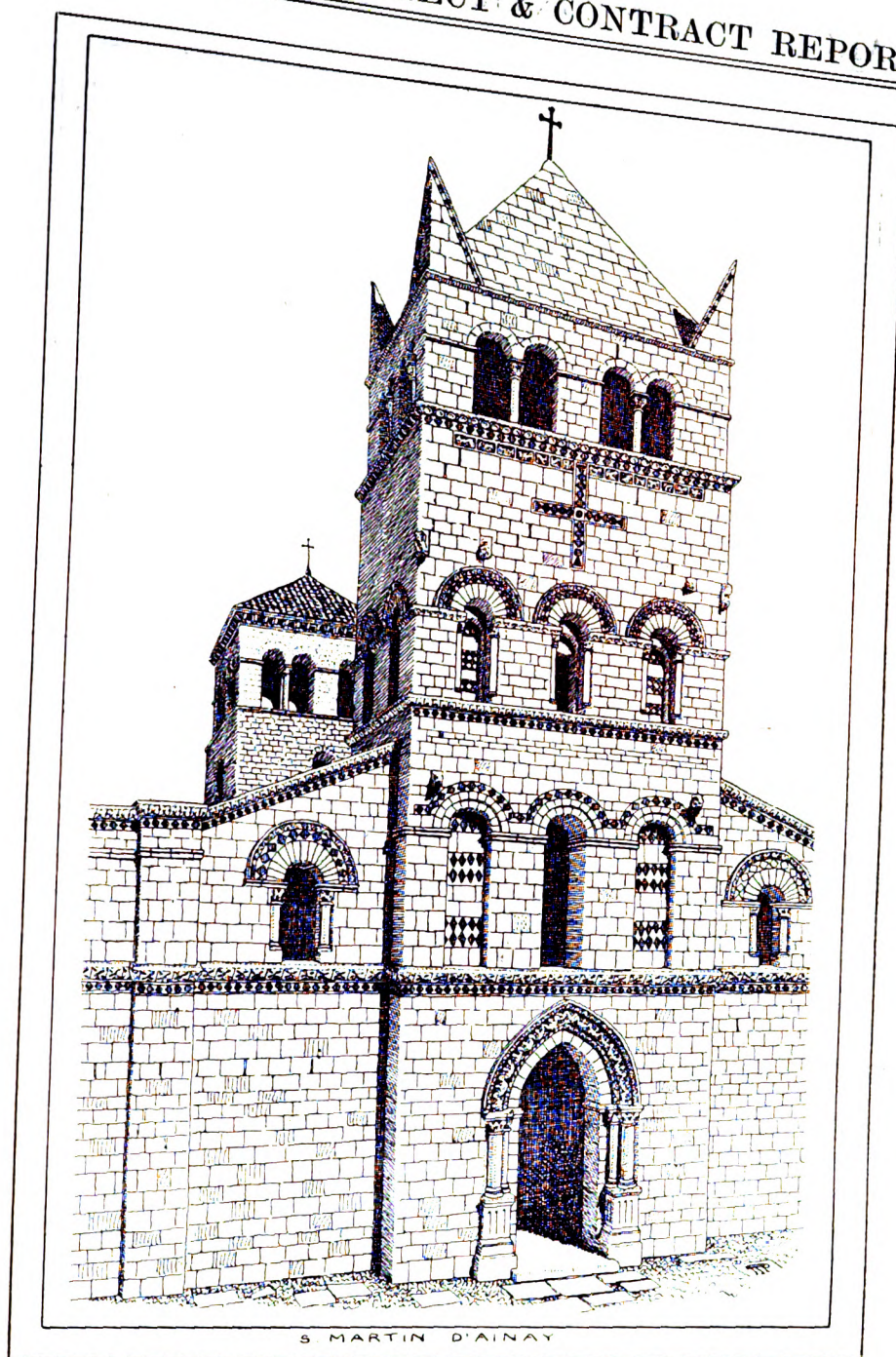


FIG. 5.—LYONS.

slightly anterior to the west front of Le Puy, are much more graceful.

But while the inlay work of Auvergne, due to southern influences combined with the various coloured local

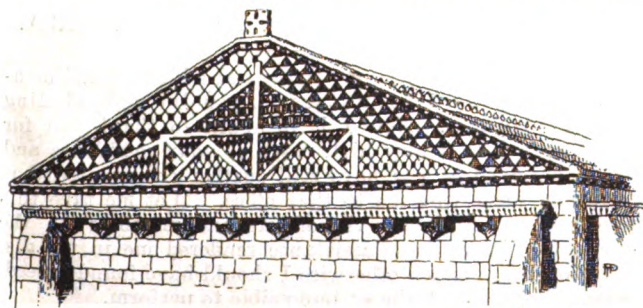


FIG. 7.

though remotely, to that of Auvergne, but much less rich in colour and extent. In the Merovingian baptistery of Poitiers (fig. 8) is a raking band of coloured and shaped tiles under the cornice of the pediment, and tiles and

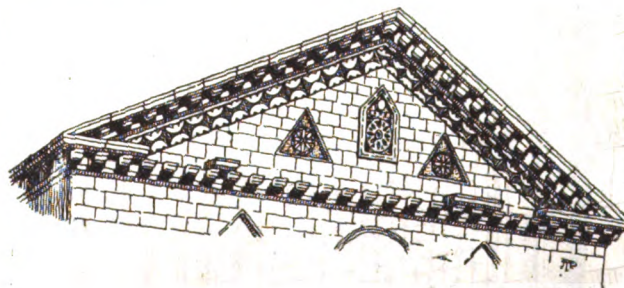
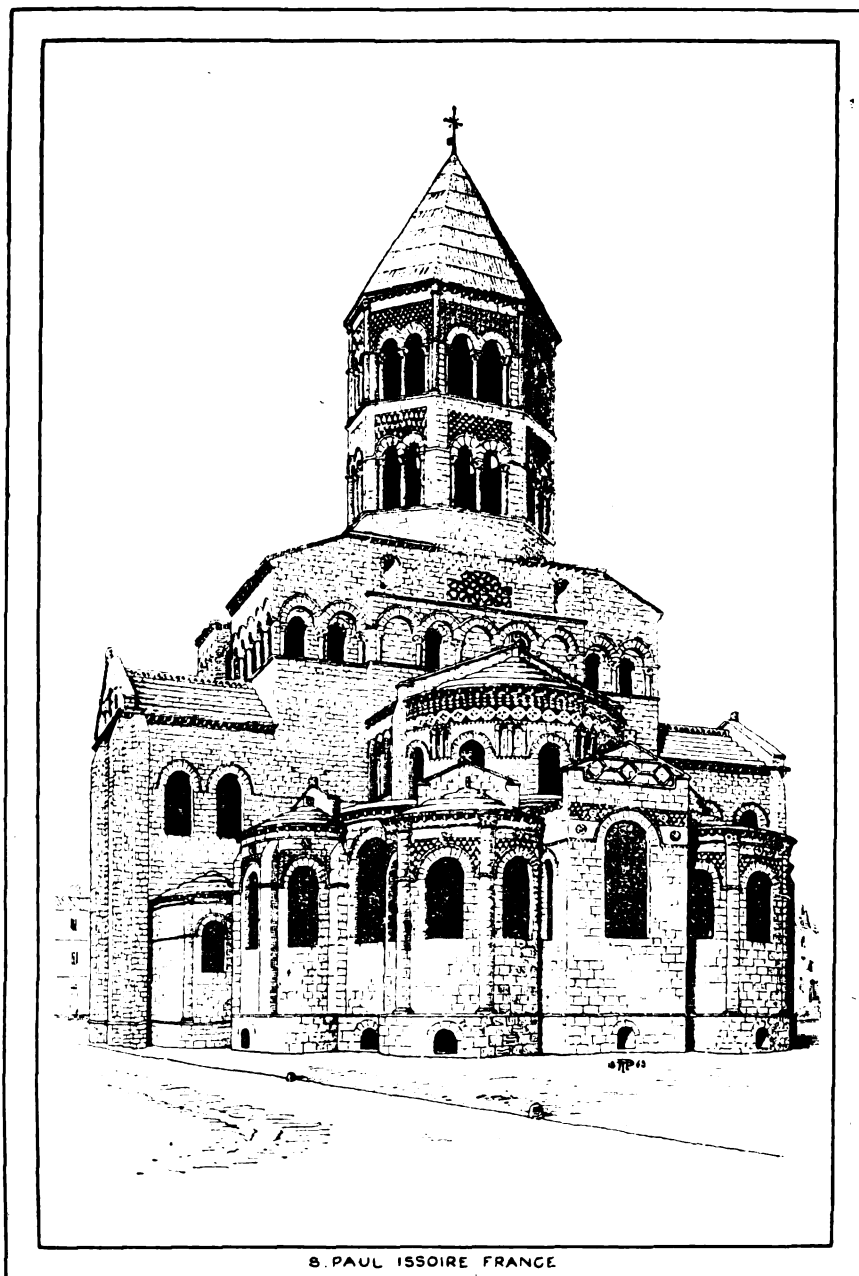


FIG. 8.

materials, was being carried on, there still survived in North-West France a ruder sort of inlay work traceable to the influence of the Roman remains scattered about the country. During Merovingian times the classic method of introducing bands of brickwork into the walling had been followed, but varied by tile inlays and herring-bone courses; and from this arose a system of decoration akin,

carved stone in panels are introduced in the tympanum; at St. Etienne, Beauvais (fig. 9), is an effective diaper of reticulated sunk panels emphasised by an inlaid tile, work contemporary with, but perfectly dissimilar to, that of Auvergne.

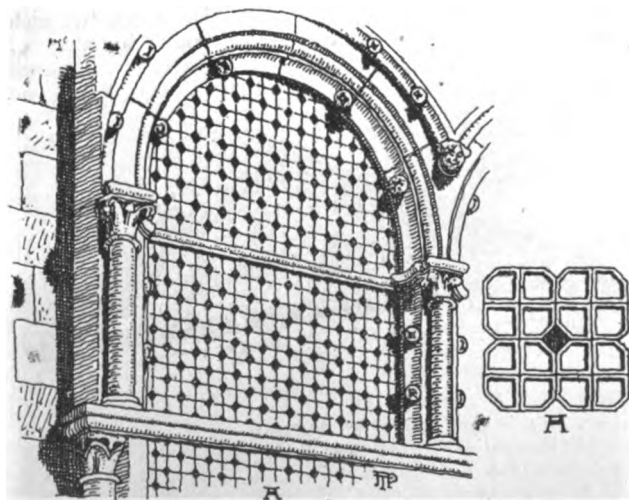
After the description of the brilliant inlays of the East and of Continental Europe, the ruder attempts at this



S. PAUL ISSOIRE FRANCE

FIG. 8.

sort of decoration in our own country may seem uninteresting; but having regard to all the circumstances of climate,



S. ETIENNE BEAUVAIS

FIG. 9.

the effect given by flint and stone is much more satisfactory than, under our skies, could be produced by marble and mosaic. Those acquainted with the work of our

Eastern Counties scarcely need to be told this, but for others we give a fair example of the work (fig. 10) from a gateway to the Close of Norwich.

THE SOCIETY OF ARCHITECTS.

Presidential Address by Mr. PERCY B. TUBBS, F.R.I.B.A.

LAST year when delivering my inaugural address I had occasion to thank you for the great honour you did me by electing me your President. Now I have again to thank you for what I regard as a very high mark of your confidence and esteem inasmuch as you have still further accentuated that honour by re-electing me to that office. Let me take this opportunity of thanking the officers and members of the Society for the valuable assistance rendered me in the discharge of duties which otherwise I should have found exceedingly onerous, if not almost impossible to perform.

In surveying our work of the past year I personally attach most importance to that part of it connected with the formation of a committee for the founding and establishing of an atelier in London, run on similar lines to those attached to the Ecole des Beaux-Arts in Paris, which is now *un fait accompli*, and about which I shall have something to say later on.

In my last address I made a suggestion that there was room for two professional societies to look after the best interests of our profession. Since then I have had twelve

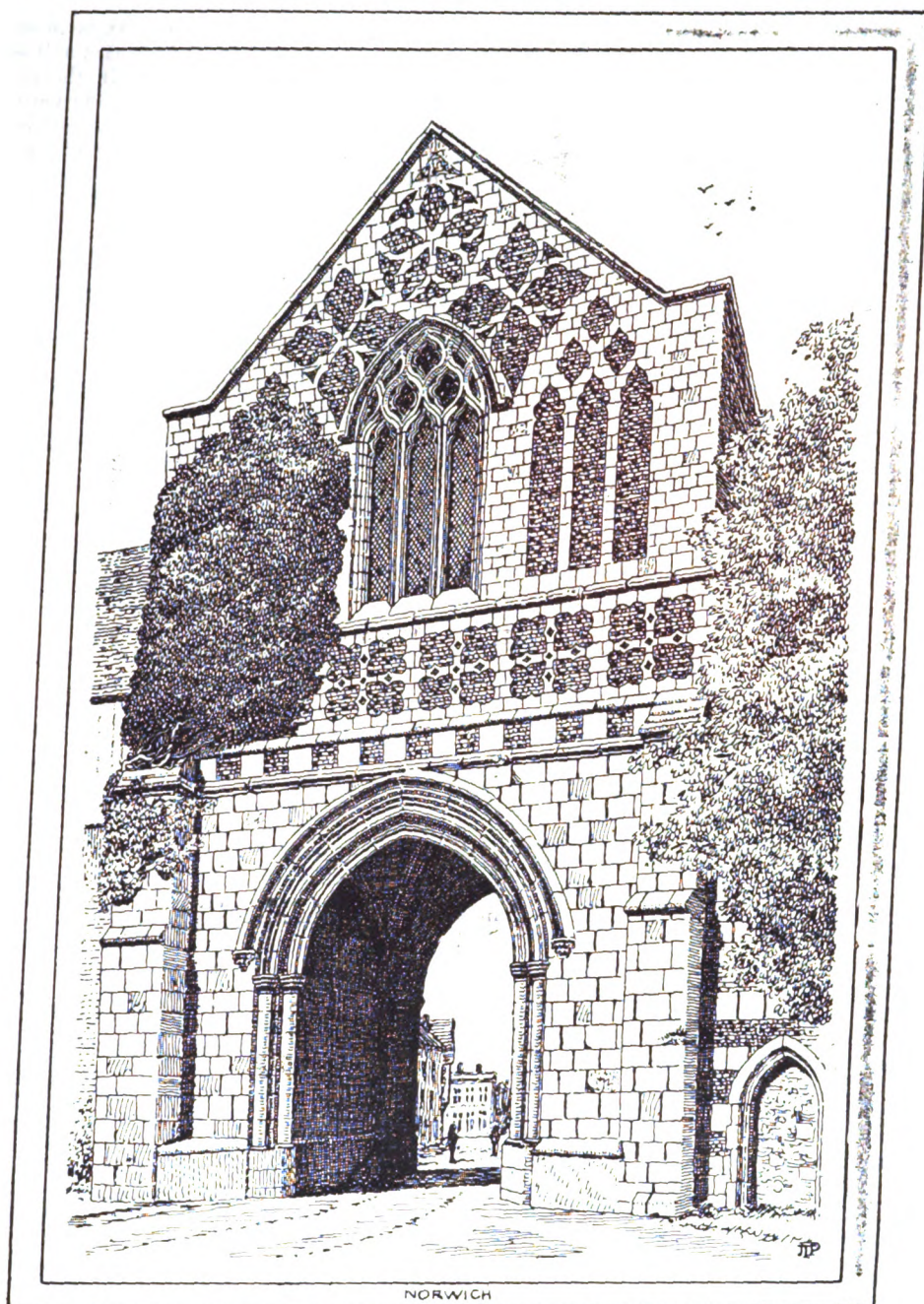


FIG. 10.—ST. ETHELBERT'S GATEWAY.

months in which to consider more fully the matter, and although I read with great interest a considerable amount of adverse criticism in the professional Press, I see no reason to alter the view that I then expressed—in fact, if anything I feel more strongly on the subject now than I did then, and I should very much like to see representative committees of both institutions meet to consider the question in all its bearings.

Having always taken a deep interest in matters relating to the general welfare of our profession it is only natural that during my period of office, under a sense of noblesse oblige, I should have given the matter much closer consideration than heretofore with a view to ascertaining if there are any practical means within our reach, the adoption of which would enable us to raise the status of our profession and the standard of its work.

I believe that such a policy does exist, but its efficacy must rely to a large extent upon the cohesion and solidarity existing in our ranks.

As a profession we must stand united; there must be unanimity of opinion and unity of action in all matters pertaining to the general welfare of the profession. Granted that for purposes of better administration sub-division into numerous associations and societies is desirable, yet in all matters of general importance to the profession we should work as one harmonious whole.

If all architectural bodies could only be brought into

agreement on this point, I venture to think that nothing would conduce more to or more rapidly accelerate the interest and progress of our profession in every conceivable way. Therefore, the dominant chord I wish to strike in my address this evening is that of unity, and until we get unity in the profession, and we are at least agreed among ourselves, it is almost impossible to make the headway that is demanded by the vast majority of the practising architects throughout the country, and by all those who realise the importance of architecture as an art, and the necessity for the proper education of architects and their protection.

Until we get a united profession it is almost impossible to deal effectually with such questions as the education and registration of architects, the proper government of architectural competitions, and the fixing of a scale of charges, which questions affect all architects whether members of any institution or not.

I think that a very good starting-point for this policy is the question of registration.

The Society during the last few months inaugurated a Press campaign in the interests of the compulsory registration of architects, and from the wide publicity given to the matter we have been able to secure the keen interest of influential members of both Houses of Parliament and of others deeply interested in the subject, but we are sadly handicapped through the lack of unity in the profession.

The benefits that would accrue from statutory education

and registration must be patent to all, as in protecting the interests and raising the status of the trained and fully qualified architects not only would the public have a guarantee of professional ability, but it would do more than anything else to get rid of those who, to the detriment of the public, do not hesitate to poach in a domain which by education and experience we ought to have the right to regard as strictly our own.

In view of the rapid growth of the Society, the Council thought it desirable last year to revise the articles of association, not only providing for present needs, but more particularly for its future development, and in doing so to form a new graduate class intermediate between the junior section and full membership. Entrance to the new class to be by examination only.

It was felt desirable in dealing with the junior class of membership to set before them the necessity for qualifying for one of the higher classes as quickly as they reasonably could, and, failing that, to advise them to turn their attention to some other calling, as they were evidently not desirous of taking the profession up in earnest.

The result of this policy is just beginning to bear fruit, for the Council have found it necessary to intimate to a considerable number of students that their connection with the Society must lapse, unless they are prepared to take things more seriously.

Personally, I am of opinion that although this will entail some financial loss and apparent decrease in the total membership, yet it must tend very greatly to strengthen the Society and to raise the standard of admission.

A situation naturally has arisen for which it is difficult at the moment to suggest a remedy, inasmuch as in the absence of statutory registration such persons cannot be prevented from starting in practice as architects, although they may be only partly trained and not possess the full qualifications necessary for the position.

On the other hand, the action which the Council has taken may result in arousing them to a sense of their responsibilities and induce them to further qualify for re-admission into this or some other architectural body.

At any rate, it is obvious that the action of the Council in this matter is entirely disinterested, and is in the best interests of the profession.

The additional disciplinary powers reposed in the Society by the new articles will enable the Council to effectually enforce the main principles laid down in the code of ethics adopted by the Society. All this must tend to the betterment of the Society as a professional body and to the advantage of its members.

I am glad to see that the example set by this Society in promoting a Professional Defence Fund and the machinery for its administration is being followed by kindred institutions not only at home, but abroad.

The Society up to the present has not been called upon to take up any case, but the knowledge that such a fund exists has been of great service to members who have been able to call attention to the fact that the fund is actually in being, and that a very influential committee has been formed ready to advise on any matter affecting the interests of architects. The very existence of this fund is evidence, I think, that this Society is desirous of affording its members every possible assistance in protecting their best interests, and consequently the profession generally.

I sincerely hope and feel that your Council will see their way to add to this fund from time to time, so that in the event of our having to fight a case we can see it right through without fear of being crippled through any lack of funds.

The part played by this Society in placing upon a working basis the proposals for the introduction of the Beaux-Arts method of educating architects into this country resulted, as you all know, in the formation of an influential committee to consider the whole matter. That committee, which is now an entirely independent one, is working on a scheme which strikes at the root of the whole matter, and your Society will always be entitled to the credit of supporting a pioneer movement of such great potentialities.

Apart from what the atelier has accomplished for the advantage of those who have placed themselves under its guidance, the Society has achieved its aim in enabling the committee to call attention to a fault of the present system of architectural training, and to point to a remedy with such effect as apparently to cause architectural educational bodies seriously to consider the question. The result of all this is that we now see strong evidence of the main lines

of the committee's proposals being adopted so far as circumstances permit at the moment. It is most earnestly to be hoped that all educational authorities will see the advantage of adopting Beaux-Arts methods in the near future.

The atelier in Wells Mews is being most enthusiastically supported by the students there, and one has only to attend the various exhibitions of the students' work that are held from time to time to see the marvellous strides that have been made in these few months in architectural composition and design.

It could not be hoped that such a scheme as this could be self-supporting from the start, and I hope that the Society will see their way clear to render the committee all the assistance that lies in their power, and particularly that they will afford it financial support until such a time as the movement becomes self-supporting.

Similar ateliers will, I firmly believe, at no very distant date spring up in various districts round London, and possibly also preparatory ones in the provinces, and I hope and believe that they will ultimately be attached to a National School of Fine Arts.

There is no doubt that there is a demand for opportunities for further study of advanced design for students who have completed the full curriculum provided in our various schools, and I believe that such an opportunity will be found in the ateliers already in existence.

I am sanguine enough to believe that similar ateliers will be started in connection with painting and sculpture, and this should lead to the Arts working together in a National School, as they undoubtedly should do, when we should not only see a vast improvement in the design of our buildings, but should also see sculpture and painting applied to them in a proper manner, and this can only be arrived at by intimate understanding between the workers in the various arts.

Last year I expressed the opinion that the time was fast approaching when architecture will come into her own again, and resume that place in the public estimation which is her due, and which she enjoys in more favoured countries, and we see evidence of this in a movement which has recently been started. A committee will, I believe, shortly be formed to consider fully the question of a Minister of Fine Arts. Personally, I wish the movement every success, and I hope this Society will offer the movement any support in its power.

I cannot help thinking that if committees were formed in provincial towns, with a central committee in London, a great deal of useful work could be done in this direction, and I believe that the literature that they might publish for the information of the general public would very soon arouse sufficient interest for the Government of the day to consider seriously the whole question. They might even appoint a Royal Commission to investigate the matter. I feel certain that a Minister of Fine Arts will be regarded in the near future as a necessity, and steps should be taken without delay to bring the matter very clearly before the powers that be.

It is rumoured that the London County Council has already taken steps to appoint an independent architect, who will be available, free of charge, to advise building owners as to the suitability of their designs for any building on important sites in London, and one can at least express the hope that this will be the thin end of the wedge for the appointment of a Minister of Fine Arts, and that London's example will be speedily followed in other large cities.

In my address last time I had a good deal to say about official architecture, and I pointed out the desirability of every public building being designed by the one man in the country who was best able to solve the particular problem involved, and this one man can only be discovered by a properly organised competition.

If we are to get the best possible design and solution of a particular problem, competitions should be left as free and unfettered as possible, and the programme should set forth the requirements and make what suggestions are thought fit; but it should contain the fewest possible number of binding conditions. It follows that, if a competitor did not adopt the suggestions, he might possibly prepare an infinitely better scheme by working entirely on his own ideas; but this would mean that he would have no chance of success at all, if the conditions were binding, instead of, as I propose, making them merely suggestions.

If the promoters knew exactly what they wanted there would be no necessity for a competition, but as a rule they have a vague idea what their requirements are, and if an

architect by departing from their suggestions can show them a better scheme it surely is in the interests of the promoters to see such a scheme. Therefore the competitor should have as free a hand as possible.

There is a very great deal of useful work that could be done by the various Architectural Societies throughout the country in connection with competitions in the direction of the proper organisation and regulation of architectural competitions. This is another very strong reason for unity.

I have yet to learn that it is a good thing for the profession that architects competing should have their designs published in book form and sold at the rate of four a penny. It seems to me that this has only to be carried far enough for people to cease altogether to require the services of an architect when they contemplate the erection of a small country residence, house, cottage, or other building that can be easily adapted to suit any site.

Town-planning schemes are being prepared in a great many districts round London, and if steps are to be taken to provide a boulevard on the outskirts there is no time to be lost. I personally have made a trip round London on about the seven-mile radius, and I think, as far as the North-West, North, and North-East Districts are concerned, it could be done at comparatively small cost, and it would prove, I believe, a real boon to London, and should be considered in connection with the town-planning schemes now being prepared.

Another point which I should like to emphasise is the question of improvements to be carried out in our big cities. It seems to me that if a committee of architects could be formed to consider the maps of the various towns in detail, and to lay down on the maps the street improvements which should ultimately be carried out when the opportunities arise, with due regard of course to the preservation of ancient monuments and fine old buildings, our towns and cities would ultimately become as beautiful as possible, and we should be all the time working to that end.

Had such a plan been in existence before the Great Fire of London, it would not have been necessary to consider after the catastrophe the best method of rebuilding, as that would have been already settled, but as it was they had no preconsidered scheme of improvement, and when it was decided what was the right thing to do reconstructions had actually commenced, and a grand opportunity was lost. We should all have been glad to have seen Wren's grand conception carried out. We must, I feel, be prepared to avail ourselves of every possible opportunity of improving our towns and cities and to have a scheme laid down on paper, so that when chances for making improvements come we shall not have to start thinking what is best to be done; we should simply have to refer to the maps and carry out at least a portion of the settled scheme.

Again, when the great fire took place in the Jewin Street area of the City of London, improvements could have been made, and a large area of back land brought up to a valuable frontage, which would have gone a long way towards paying the cost of the improvement scheme. As we are now situated, it is only when a catastrophe occurs that we have occasion to start thinking about improvements; whereas, if a definite scheme was in readiness for such emergencies no time would have to be lost, and part of a thoroughly well considered scheme carried out, instead of either rebuilding on the old lines or adopting a scheme not so fully considered.

What we as architects should try to do is to beautify our cities as opportunities arise. We could make a start by giving all the support possible to the smoke-abatement movement. This would tend to purify our atmosphere and give us more frequent opportunities of seeing our buildings under blue skies and brilliant sunshine, and enhance the charm of architectural beauty.

Our stone buildings would then, no doubt, instead of weathering black on one side and white on the other, assume the beautiful tints they do in many Continental cities. We should encourage on all possible occasions the use of smokeless fuel, and if we did this in private houses a great deal of the smoke nuisance would be abated. As it is, I firmly believe that in London the smoke arises more from the huge aggregate of private houses than from the factory chimneys.

Another very important matter which should receive careful consideration is that of the encouragement of craftsmanship as an example. One way of bringing this about would be to increase the responsibilities of the men entrusted with the work. I should like to see the man actually in charge of the work take his own particulars from the job, carry it out himself, and fix it at completion. A great deal

of the interest which we see in mediæval buildings is due to craftsmanship. In those days the craftsman had a fairly free hand, and worked out his own scheme for the particular work assigned to him, and it was left practically with all confidence in his hands by the master mason or the architect, for the man entrusted with the work was known to be a competent craftsman, and his individuality was recognised and appreciated; but now if a fine piece of work is carried out the firm which is employed take all credit for it, and the name of the actual individual craftsman rarely transpires.

It seems to me that the men themselves, who have the greatest responsibilities in carrying the fine piece of work to a successful issue, should be recognised.

A good example of this is told of a certain well-known architect, who when he designed a village hall promised to recognise the merit of the workmen by having their names carved on one of the beams in the club-room. This is the kind of encouragement the men appreciate, and the architect in question had every reason, I understand, to be grateful to the men for the way his design was interpreted and carried out.

In conclusion, I would again call the attention of my fellow-members to the dominant note in my remarks this evening—Unity!

I would like you to understand that the Council of this Society will always be ready to receive any suggestions that are likely to further this laudable object, which is of such great importance to the general welfare of our profession.

It seems to me that such matters as architectural education and registration, architectural competitions, a scale of charges, a Ministry of Fine Arts, professional defence, official architecture, and other matters which I have alluded to in my address, would be enormously helped if we could only be united and pull together in the right direction. Our greatest chance of success lies in our being a united profession, and therefore I plead for unity.

THE COTTAGE PROBLEM.*

By THOMAS POTTER.

(Concluded from last week.)

Skirtings.

SKIRTINGS in cottages should be of cement—wood wants painting, cement does not. Wood is apt to get dry rot and mice easily bore through it. The only objection I ever heard to cement skirting is that it is liable to get damaged and come away from the walls; this is not my experience. But wood or cement angle fillets about 1½ inch square and chamfered do equally as well as skirtings, the only object of which is to protect the plastering from damage by chair and table legs. This is another small economy. Where cement-slab partitions are used, which are practically undamageable, both skirtings and fillets can be discarded, provided they are not plastered.

Doors.

What are known as 6 feet 6 inches by 2 feet 6 inches by 1½ inch square panel doors are the best for internal purposes; they are less subject to warp, twist, and shrink than ledge doors, and cost but little, if any, more.

Cupboards.

A small cupboard in an angle in each bedroom is an advantage.

Dresser.

A small dresser with drawers and shelves over, a dwarf cupboard if means permit, and a fall-down table against the window in the living-room are all well worth their small cost. The fall-down table is extremely useful for many purposes, and affords the housewife, when employed thereat, an opportunity of seeing the bright side of things through the window.

Shelving.

Sufficient shelving is necessary in the scullery and larder and a peg-rail with school board hooks in the lobby and also in the scullery. If these are not provided the doors will be utilised by driving nails therein for hanging coats and cloaks thereto.

* A Paper read at the Holborn Restaurant before the Society of Estate Clerks of Works, on Oct. 14.

Larder.

In planning, the larder door should not be in the scullery or living-room, which is almost invariably the case, but in the lobby. Soft foods, such as butter and cheese and milk, rapidly absorb impure gases, generated where food is cooked. Perhaps washing is performed, and the rooms are occupied for hours at a time by the family with all the doors closed. A towel roller on the back door and blind rollers or curtain rods to the windows are essential.

Windows.

Windows may be the ordinary sash or casements. My experience in occupying at various times cottages with windows of each kind is that casements are more draughty, more difficult for keeping out drifting rains, and more readily damaged, and children are apt to sustain injury through the casements when open and left unfastened being blown to by a sudden gust when their hands are resting on the sills.

At Braintree lately the Council built some cottages with casement windows, and, being unable to let them, sought the cause from various women who were wanting cottages, and was told that one reason was they did not like casements. A lady some time since spent some months in inspecting the cottages and ascertaining the views of the tenants in connection therewith in numerous villages in the Eastern Counties, and invariably she was told they preferred sashes.

Sink.

A sink in the scullery should be fixed on iron brackets. If supported by brick piers, corners and angles are the result, and which hold dirt and dust, and between the piers is a convenient hidden place for the slop pail, house flannels, scrubbing brushes, &c. Iron brackets expose these to view, and a better place is as a result found elsewhere. Canadian latches are suitable for all inside doors. Cement jambs and frieze and wood mantel to the living-room and cast-iron grate and mantel in one piece for bedrooms of the cheapest description, as they are rarely used except in cases of sickness, and for this reason fireplaces are only necessary in two bedrooms—another economy.

Ventilation.

The plea that fireplaces are wanted for ventilation is negatived in my experience by finding bags of straw pushed up the flues to prevent down-draught. So with ventilators, whether in walls or ceilings, I never saw one yet but which was covered with paper.

Chimney.

If the chimney stack is arranged to serve all the fireplaces of a pair of cottages, brickwork is saved and the chimneys are less liable to smoke than if in outside walls.

Drains.

Drainage is entirely a matter of circumstance. Probably the best arrangement is for a large bucket to be placed outside and under the sink outlet pipe, to be emptied over the garden when full. Hidden drains to a labourer's cottage—except there is a main sewer—are always a trouble and a nuisance, but this would not be allowed where there are any rural by-laws.

Water Supply, &c.

Water supply is a local consideration, and whether a privy or an e.c. is still very much a matter of opinion, as it always has been.

Bungalow.

The bungalow form of cottage is finding a good deal of favour in some parts, and possesses many advantages over the two-storey cottage. It costs no more, usually somewhat less. To the housewife its advantages are that there are no stairs to scrub and for children to fall down; and as, according to Dr. Vivian Poore, the labour of raising the body vertically is twenty times that of walking on the level, each time she goes upstairs she has expended as much strength as would be necessary in a straight walk of 180 feet. There being no wood-joisted floors and no wood partitions, there is less danger from fire and dry rot.

A gruesome feature of a two-storey cottage with its narrow stairs and winding treads, perhaps both at top and bottom, is the difficulty of getting a coffin down from a bedroom—in some cases almost a revolting spectacle to those who may be looking on. There are many other advantages, and I speak from a twenty years' experience in living in a concrete bungalow.

Whether Mr. Runciman's scheme for the Government not only to supply plans for cottages, but to become builders' merchant and supply the materials, will be a success is open to criticism. According to Mr. Chiozza Money, M.P., builders' merchants and manufacturers make a profit of 30 per cent. to 40 per cent. on the materials they supply—news which will cause some of that class to open their eyes.

As a matter of fact, the principal materials—bricks, stone, tiles, sand, and lime—are local products, and to those who can pay prompt cash are obtainable at prices which leave but a moderate profit and which are, as a rule, purchased direct from the manufacturers without the middleman's profits. How the Government can supply them for less, establishment expenses included, if the business is to be run on commercial lines, seems somewhat of a puzzle.

The windows, doors and other joinery, and the ironmongery, seem to be about the only things in which a profit could be made by buying wholesale. The joinery of a pair of cottages, including ironmongery, costs about £38, and washing boilers, baths, ranges, bedroom grates and mantels, e.c. fittings, sink, &c., £20, together £29 per cottage, and at present cutting prices it is doubtful whether the Government could compete in cost with merchants who deal in those classes of goods when carriage and establishment expenses, as with every other business, are taken into consideration.

Foreign timber merchants say that their business is cut so fine now, owing to competition, that prices are at the lowest. It is not probable that it would answer the Government's purpose to import timber and establish timber depôts in various parts of the country only for the purpose of supplying it for cottages and small holdings, and if from one depôt the carriage to remote parts of the country would probably make it cost more than timber importers can supply it at with no middleman's profits to deal with, and with, in many cases, less carriage to pay.

The time allotted for this paper and the discussion thereon only allows sufficient for skimming the subject, otherwise there are many points in connection with labourers' cottages which might be profitably dealt with.

PORTRAITS BY BRITISH ARTISTS AT THE FRENCH GALLERIES.

THE public owes a debt of gratitude to Messrs. Wallis & Son for bringing together such a fine collection of works by British masters. Some of the London club-houses and noblemen's mansions with the Royal palaces within a mile of the French Galleries in Pall Mall contain notable canvases, and often of greater historic interest; but none of them can surpass the present small exhibition in one respect, and that is the unique presentation of works by Sir Henry Raeburn, R.A.

There are portraits shown here, also, from the facile brushes of Reynolds, Gainsborough, Hoppner, Romney, Lawrence, and one by Sir J. Watson Gordon, P.R.S.A. (ob. 1864), but if in a few cases they approach Raeburn's in mastership to a point of equality these instances are very few. We are not accustomed to see Sir Joshua taking a secondary place, but in our opinion he is relegated here not merely to second, but to the third place, which he shares with the remaining artists, saving John Hoppner, R.A.

Raeburn and Reynolds have long been our idols in the British school, each in his own style; but whereas the former here is represented by some of his most characteristic work, the President fares badly; neither the vast canvas of the Marquis of Granby (not forgetting his steed), the portraits of Edward Woodcock and Richard Burke, nor the sketches of Ariadne and La Madonna col Bambino prove of absorbing interest, though Mr. Woodcock is the best of the five for general effect, as is the Ariadne for colour. But contrast with these the masterly series of the Raeburns; regard the portraits of Mrs. Skene, Thomas Thomson, and Thomas Kennedy—their virility, colour, sculpturalness; above all, the latter quality. Raeburn's virile touch is well known, and with it he could unite the necessary grace and charm in the portrayal of his lady sitters—and we find less (indeed none) of the insipid affectations in feminine portraiture somewhat characteristic of the canvases of Reynolds, Romney, and Gainsborough. And in yet one more—and this an important—quality do we note the superiority of Raeburn, in whose work there is a convincingness in relation to the portraiture that is not infrequently lacking in the work of the trio just mentioned; or perhaps we shall more justly express our meaning if we say that whereas we are never in doubt as to the fidelity of Raeburn's portraiture, in the work of the other artists there is too often a certain conventionality.

Hoppner's portrait of Lady Langham does not properly admit of anything but the highest praise, and if we observe a certain photographer's affectation in respect to the mise-en-scène, it is the only note of adverse criticism we would sound. Gainsborough's portrait of Mrs. Simpson is full of grace, the head and bust are charmingly modelled, and the technique throughout is excellent. Romney and Lawrence are not well represented; the former we like best when Lady Hamilton was his model, though we do not suggest that such works were the only valuable productions of his brush.

In conclusion, we confess to a sensation of a seeming impertinence not alone in adversely criticising any of these artists, but even in publicly praising them; and yet perchance, if we allow ourselves free criticism and free praise of the works of God, we need not experience any excessive modesty in pursuing similar lines respecting the works of man.

S. SOPHIA AND ITS DOME.

As memory recalls the national churches of Christendom, from that of the Holy Sepulchre at Jerusalem to the new one of multiform dedication at Westminster, the domical feature has a transcendent fascination. The term "dome" stands for a great church in both Germany and Italy, but the boldest specimens are in other lands. S. Sophia's at Constantinople still stands, largest and oldest.

May a layman venture on a fresh description? Events drive the mind now to this ancient fane. Let a pilgrim place himself within its portals, barefooted out of regard to the Spirit of the hour, bareheaded out of regard to the Spirit of the past. The "mighty march of the Moslem" is in a sense around us, as eight black discs (30 feet in diameter) proclaim at once the true God and the false Prophet. But it is a veritable Christian temple, one, moreover, which has probably never echoed artificial music. The obtrusive boards may be taken as a foil to the architecture around and behind them. History tells of the Emperor Justinian dedicating the church on December 26, 537, and exclaiming, "I have surpassed thee, O Solomon!" Fifteen centuries before over the "Dome of the Rock" the Hebrew king had dedicated a most singular structure covering a tenth of this area. The architects of S. Sophia were of Asia Minor, Anthemius of Tralles, and Isidorus of Miletus. Reconstructions consequent on earthquakes and settlements now obscure their designs, and some original measurements can by no means be traced. Even their designs must have been subordinated to stability, and modern reparations will have to be repeated if the whole is to be saved.

The church proper is nearly a square, 250 feet by 235 feet, and inner and outer vestibules, the familiar narthex of the Greek Church, form its west side. Thence we enter a nave of about 200 feet by 100 feet, which is central, having a processional circuit or ambulatory (including two aisles) varying in width from 60 feet to 20 feet, and at the ends less. The roof of this nave may be described as a double concentric dome subtended by two semi-domes. Four stone piers (each with a sectional area of 500 feet) enclose a central square of 108 feet, and at a height of 74 feet (the height of the four external walls) they support the dome. At this level walls, piers, and pillars may be said to end, roofing begins, and the circle reigns.

Each aisle is divided by a floor forming a gallery for women—a gunaikeion. Colonnades of richest marbles divide both upper and lower aisles from the nave. The roof of each aisle is a segmental lean-to which buttresses the nave roof.

At the 74-foot level the eye discovers a mutilated dome (its diameter 152 feet, the diagonal of the square), its lower sides cut off, the piers developing into coved span-drills or pendentives 60 feet high, which enclose huge semi-circular arches—two on the north and south of 74 feet diameter, and two of 103 feet crossing the nave. This dome, if spherical, would have been 76 feet high, but at 60 feet the architect stopped, and here is his central idea. The dome of the Pantheon at Rome with an external diameter of 142 feet, would, if sprung from the same level as this pendentive dome, give a space between the two of 5 feet all round. A hemisphere of equal height to its supports, as at the Pantheon, might have been impressive even with the north and south sides cut off for light, but this is truncated to afford a circular foundation for the spring of a complete dome of 108 feet, the diameter of the central square below, and slightly more than that of St.

Paul's, London. This dome has a depth of about 48 feet, 6 feet or one-ninth less than a hemisphere, thus affording a flatter field for light to reach the mosaics of the canopy and perhaps the better to preserve and deflect music (always vocal) rising from below. The foundation being contracted or domical is obviously one which no reasonable thrust could burst; indeed, the dome would fall first and this, alas! it may do. Externally the masonry at the back of the pendentives is carried up vertically, thus forming a quadrangular block with a wide platform like that round the dome of the Holy Sepulchre at Jerusalem and many a smaller-domed building in Turkey. To strengthen or repair the dome this block has been repeatedly carried higher.

The dome is stiffened with forty ribs, mostly external, which abut heavily on the platform. Between their bases are as many windows. The horizontal circle enclosing the pendentives is beautifully corniced, and has a smaller diameter than the dome above, allowing a gallery 2 feet wide. Here weight, whether of stone or brick and cement, must have given an ever-present anxiety to the architects.

In the dome and other brickwork of the church the bricks are mostly square—14 inches to 24 inches or more and 2 inches thick, with an equal amount of cement in true Roman style. The joints slant slightly downward, but not radially to the centre. The successive jutting (as in a log bridge) must have saved centreing, the bricklayers working true by swinging a horizontal pole which radiated from a temporary "kingpost." The present height from floor to crown is given as $74 + 60 + 48 = 182$ feet.

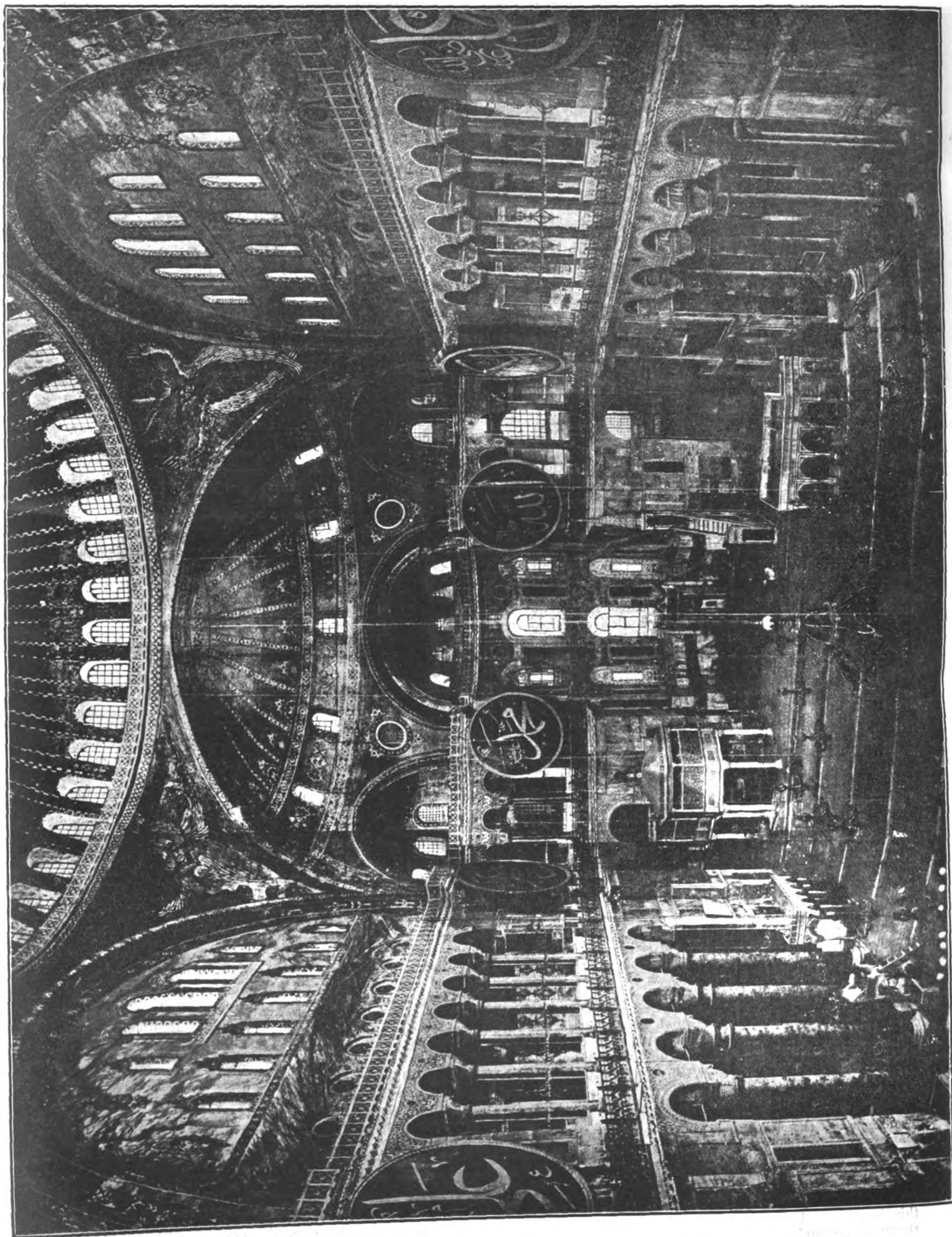
We have seen how the nave of 200 feet by 100 feet is roofed by a square dome and a semi-dome on each side of it. The inner edge of the semi-dome is the arch of the truncated or pendentive dome on the east and west sides respectively. The horizontal radius of each semi-dome (74 feet from the floor) is of course approximately 54 feet. Here, again, for appearance and for light, sides are cut off, leaving three semi-circles, which require two piers. Thus the nave has eight massive piers supporting four large and four smaller pendentives. These subordinate arches have in their turn semi-circular alcoves, giving still further scope for the redundant ornament beloved of the Byzantine. At the east end the middle arch rests on the outer wall. It impended the ikonostasis, the holy table being in a small apse outside the wall. The corresponding arch at the west end impends the main entrance from the narthex. The whole structure is admirably strengthened by the great enclosing wall.

For a model of the roof of the nave of S. Sophia take half a coconut; saw off four sides, leaving four legs, the pendentives, making two smaller semi-circles for the north and south arches and two larger ones for those which cross the nave. Saw off the top close to these arches. This top represents the dome inaccurately. The half of a smaller nut (two-thirds the diameter) would do it. The dome being half the roof, two half-domes, 100 feet by 50 feet, are needed to complete it. The other half of the second nut will, if bisected, meet the case. To get the three subordinate arches of each semi-dome cut off three small pieces, making four bases, two merging in the great pendentives and two standing on the smaller of the eight main piers.

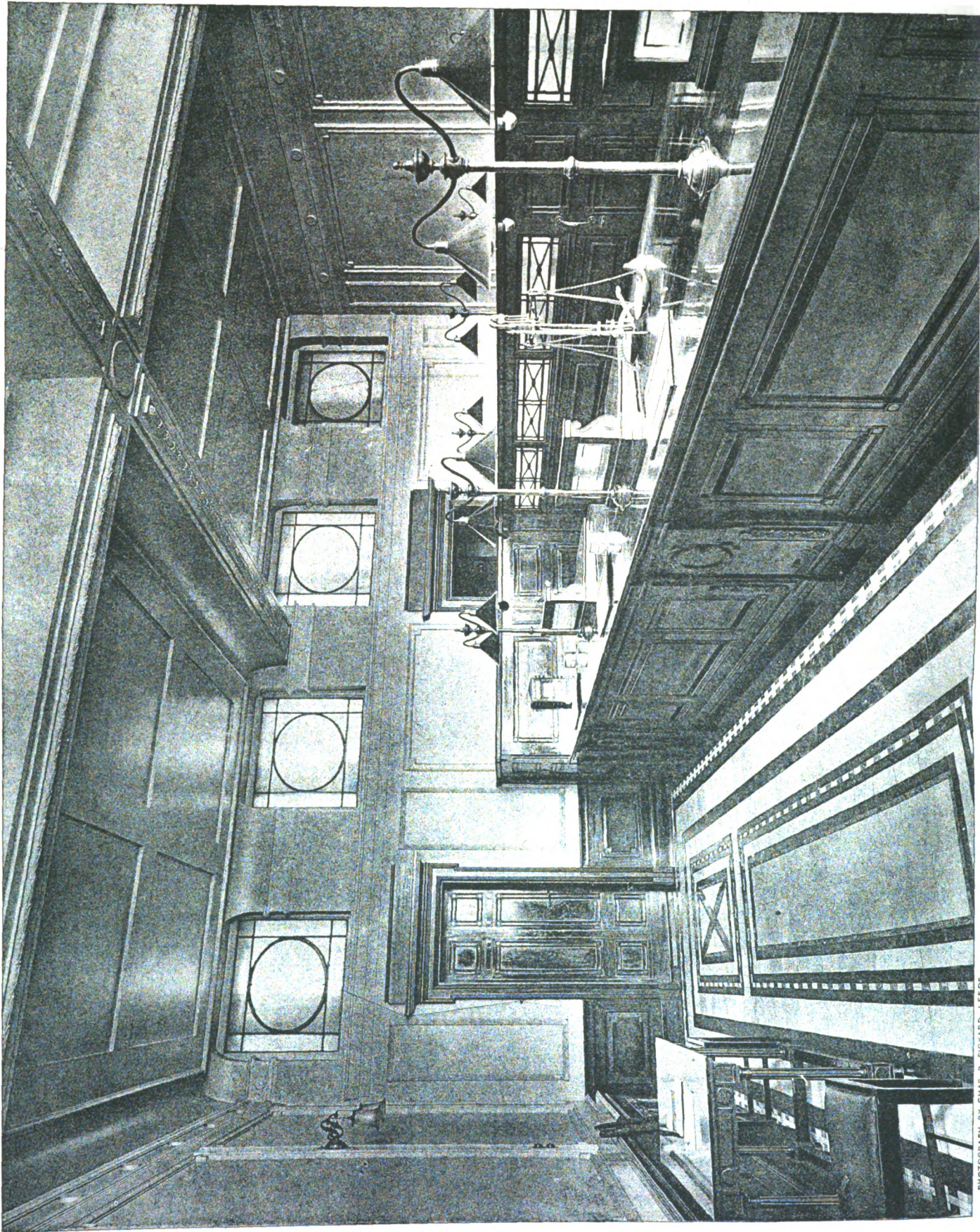
A very able (anonymous) critic has lately observed that had the dome been buttressed by semi-domes on the north and south as well as on the east and west both the cruciform idea and the statical properties would have been complete; yet even as it is S. Sophia's is "the skilful production, from the slenderest materials, of the grandest architectural effects and of perhaps the finest combination of domical vaulting the world has ever seen."

There were hopes that the Capitol at Washington, with its triplet of domes, would, in its superb position, be the grandest specimen in the world, but it has more than one fatal fault.

When the Roman Catholic Church set about the Cathedral at Westminster the architect preferred a Gothic design, but the sagacity of Cardinal Vaughan desired the metropolitan church of this kingdom to be at least pre-Gothic if not pre-Latin and independent of western associations. So Bentley got some inspiration for his basilica from the sixth-century ideas of the Asia Minor architects of S. Sophia's, omitting a central dome with its complication of buttressing segments. London would have dearly liked to see the long nave of old St. Paul's or a magnified St. Mary Redcliffe, Bristol, the Gothic gem of our day, something, indeed, to surpass Westminster Abbey and which might compare with the Norman giants of the Gallican church at Rouen, Chartres, Amiens, &c. But the cost would be



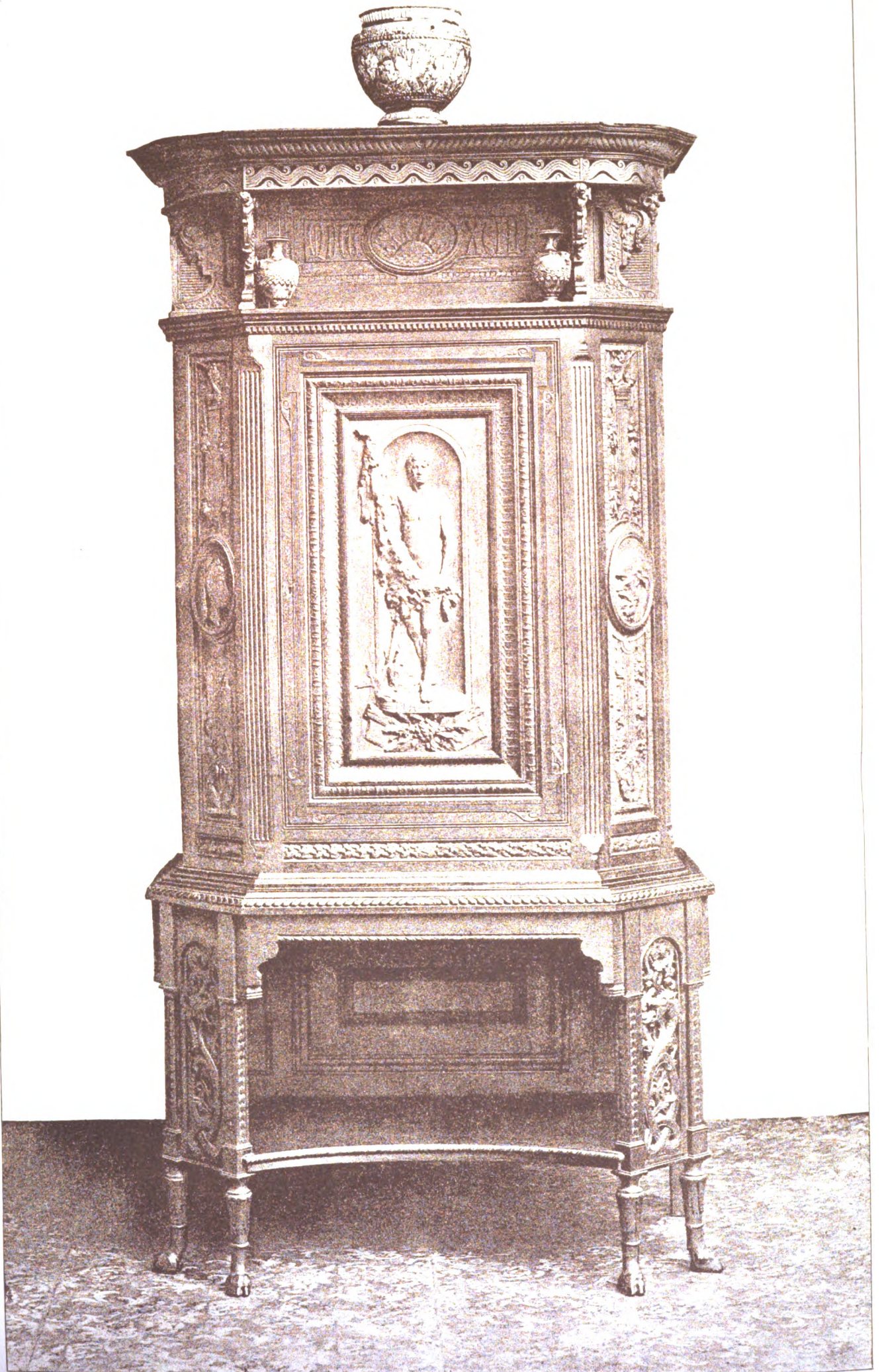
INTERIOR OF S. SOPHIA, CONSTANTINOPLE.



PHOTOGRAPH BY CHAS. R. FICKARD, LEEDS.

LLOYD'S BANK, DONCASTER.

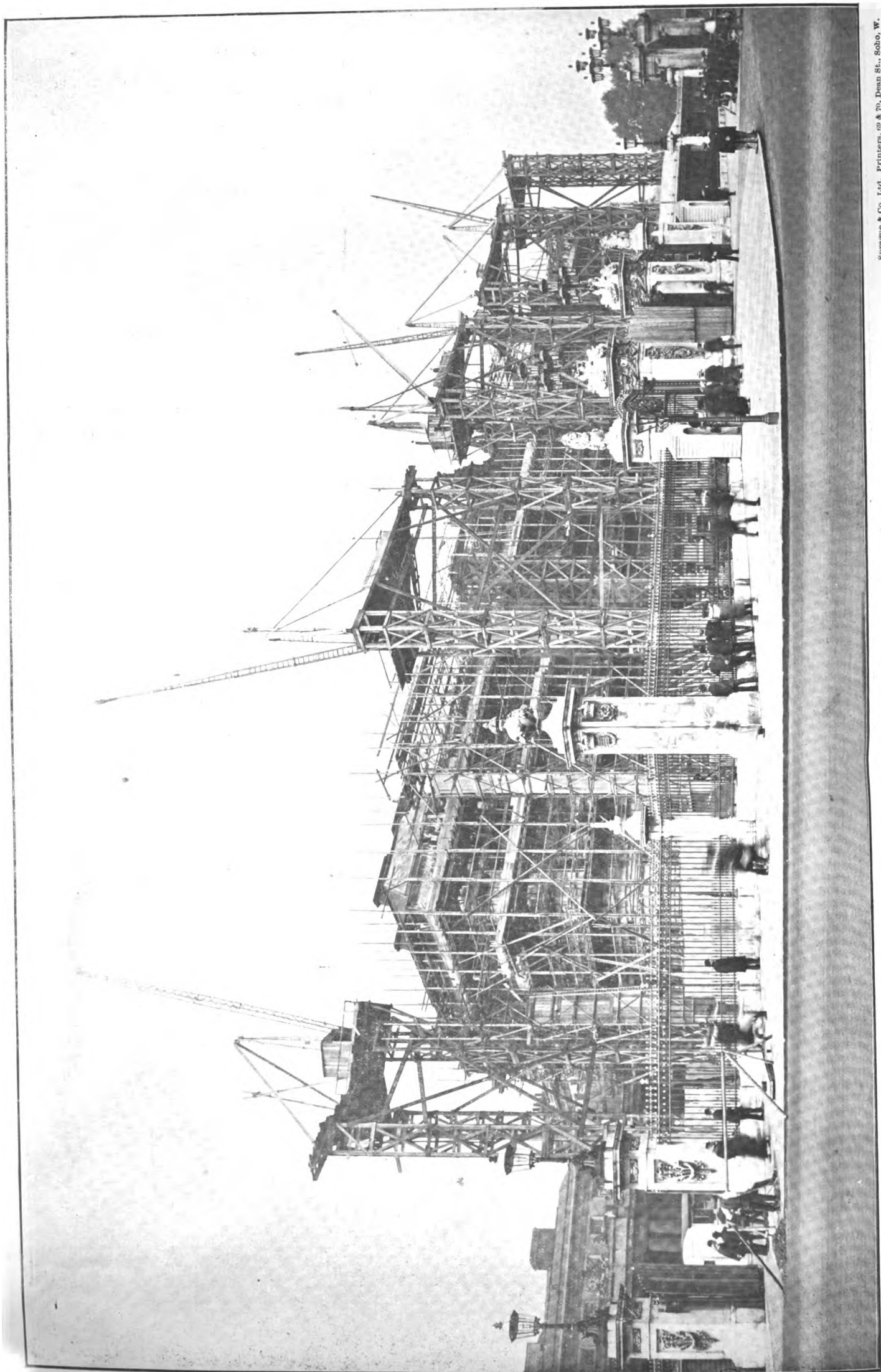




INK-PHOTO SPRAGUE & CO. LTD 69 & 70, DEAN STREET, SOHO, W.

CABINET IN OAK.

By MR. MARK ROGERS, R.B.S.



NEW FRONT TO BUCKINGHAM PALACE—IN PROGRESS.
SIR ASTON WEBB, C.B., C.V.O., R.A., Architect.

Sprague & Co., Ltd., Printers, 65 & 70, Dean St., Soho, W.

PHOTO BY E. MILNER, 80, THE GROVE, WANDSWORTH.

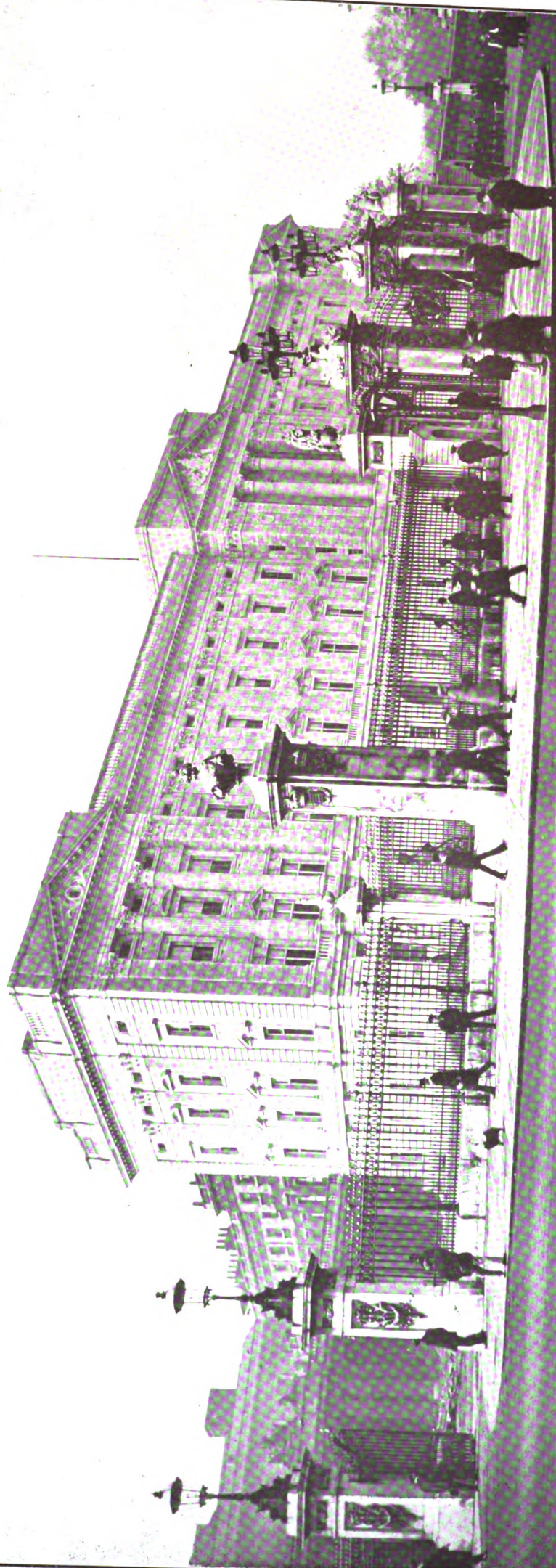
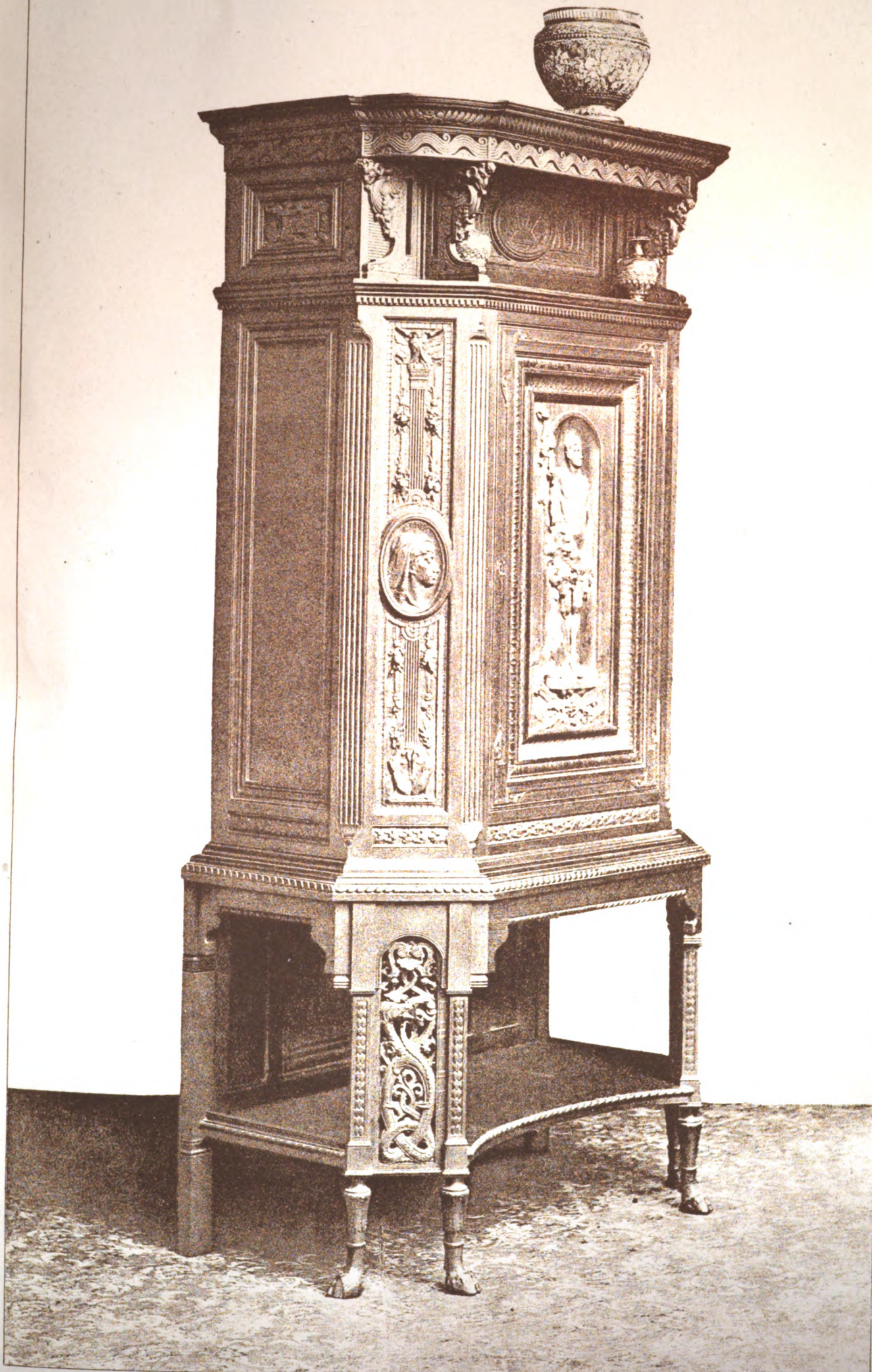


PHOTO BY E. MILNER, 80, THE GROVE, WANDSWORTH.

NEW FRONT TO BUCKINGHAM PALACE—COMPLETED.

Sir ASTON WEBB, C.B. C.V.O., R.A., Architect.

Sprague & Co., Ltd., Printers, 66 & 70, Dean St. London, W.



INK-PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

CABINET IN OAK.

By Mr. MARK ROGERS, R.B.S.



PHOTOGRAPH BY CHAS. R. PICKARD, LEEDS.

"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

LLOYD'S BANK, DONCASTER.

Mr. SIDNEY D. KILSON, F.R.I.B.A., Architect.

MODERN EUROPEAN ARCHITECTURE.
NORWAY.

DETAILS FROM HOUSE FOR CONSUL-GENERAL H. OLSEN, CHRISTIANIA.—[From *Arkitektur og Dekorativ-Kunst*.—Mr. H. BULL, Architect.]

several times that of a Byzantine form. So at Westminster we find the restful symbol of the semi-circle in harmonious multiples, while aloft a row of 60-foot hemispheres magnifies the music.

A smaller church of the same date and somewhat similar architecture stands near to S. Sophia's—that of S. Eirene. It is the subject of a monograph by Mr. W. S. George (*Frowde*, two guineas).

Burnt up, like S. Sophia's, in 532, it, too, was rebuilt by Justinian, and both churches have shared the troubles of earthquake. Since 1453 it has been a museum of trophies and arms.

The *Architect* of June 21, 1907, had an illustrated article on the mosque of Akhmet, its columns the largest in the world, and its dome (92 feet externally) among the largest of Moslem construction. Last November it was crowded with cholera-stricken and wounded soldiers, while more than 4,000 covered the floor of S. Sophia's—untended—lurid theme for the journalists who were then attending on the God of War!

Geometry almost lends itself to history. The Moslem advance on Christendom took geographically somewhat the form of a crescent, its points 700 miles apart, and divided by 700 or more years in time. It receded from Europe in the west (1492), just as it was advancing in the east. Embracing the Mediterranean, this crescent reached Tours under the Arabs, to be beaten by Charles Martel in 732, and Vienna under the Turks, to be beaten by John Sobieski in 1529. The Turks entered Europe at Gallinoli in 1355, taking Constantinople, and killing the thirteenth Constantine in 1453.

MR. JOHN STEEL, Lic.R.I.B.A., Wishaw, has been appointed architect for the joint Lanarkshire Burghs sanatorium, which is to be erected on the estate of Muirburn, Strathavon. The estimated cost of the sanatorium is £20,000. It is proposed to build a hospital pavilion for 20 beds, two chalet pavilions each with 20 beds, and two shelter pavilions of the same capacity; an administrative block, including nurses' quarters, medical superintendent's house, porter's lodge, and six houses for workmen, along with accessory buildings and plant. The administrative buildings will provide for the accommodation of a staff capable of dealing with about 150 patients.

SUPPLY OF GOODS TO THE ORDER
OF ARCHITECTS.

On Monday last the Lord Chancellor and Lords Atkinson, Dunedin, and Kinnear heard arguments in the House of Lords in the case Omar Ramsden and Alwyn Charles Ellison Carr v. J. Chessum & Sons, which was an appeal by the plaintiffs from an order of the Court of Appeal reversing the decision of Mr. Justice Hamilton, who at the trial had ordered judgment to be entered for the plaintiffs.

The appellants were represented by Mr. John Sankey, K.C., and Mr. J. Bromley Eames, and the respondents by Mr. Francis R. J. Radcliffe, K.C., and Mr. G. A. Scott (the former instructed by Messrs. Hopgood & Dowsons, 31 Spring Gardens, and the latter by Messrs. Mackrell, Maton, Godlee & Quincey, 21 Cannon Street).

Mr. Sankey, in opening the case for the appellants, said the action was brought by the appellants against the respondents, who are builders, for the purpose of recovering the sum of £142 13s., as the price of goods supplied to the respondents on the order of Mr. Melville Seth Ward, as architect, and used by the respondents in completing a building known as Cinema House. An agreement was made on October 26, 1909, between the London Cinematograph Company (1909), Ltd., and J. Chessum & Sons, and this set forth that the former were desirous of erecting upon a site at 225 Oxford Street a cinematograph theatre, and had caused to be prepared drawings and specifications by Mr. Melville S. Ward, of Victoria Street, Westminster, their architect. The agreement provided that the Company would pay the contractors a certain sum or such other sums as may become payable at the times and in the manner specified in the conditions. The conditions of contract provided that the works should be carried out in accordance with the directions and to the reasonable satisfaction of the architect in accordance with the signed drawings and specifications, and in accordance with such further drawings, details, instructions, directions, and explanations as may from time to time be given by the architect. If the work shown on any further drawings, &c., was likely in the opinion of the contractor to entail extra cost, he should, before proceeding with such work, give notice in writing to this effect to the architect. The schedule further provided that in the event of the architect and contractor failing to agree as to whether or not there was any extra,

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

71 Southampton Row, W.C.

Works Tel. No. : 155 Darwen.

London Tel. No. : 2781 Gerrard.

Telegrams { "Anaglypta, London."

"Anaglypta, Darwen."

LINCROSTA-WALTON. CAMÉOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No. : 8769 Gerrard.

Telegrams : "Lincrosta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No. : 422 East

Telegrams : "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSEL

ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

CLARIDGE'S PATENT ASPHALTE CO., Ltd.

21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."



SAVOY HOTEL GARAGE BOURNEMOUTH
FITTED WITH 18 KINNEAR PATENT STEEL ROLLING SHUTTERS
BY ARTHUR L. GIBSON & CO. RADNOR WORKS, TWICKENHAM.

ARTHUR L. GIBSON & CO.

Radnor Works, Strawberry Vale,

TWICKENHAM.

SOLE MANUFACTURERS OF

Kinnear Patent

Steel Rolling Shutters

FOR

TRAMCAR DEPOTS,

GENERATING STATIONS,

BOILER HOUSES,

ENGINE SHEDS,

WAREHOUSES,

GARAGES,

And Entrances Generally.

MANCHESTER:

33 Arcade Chambers.

St. Mary's Gate.

GLASGOW:

70 West Regent Street.

and of the architect deciding that the contractor was to carry out the work, the contractor should accordingly do so, and the question whether or not there was any extra, and, if so, the amount, should, failing agreement, be settled by an arbitrator. It would seem, therefore, that the work was to be carried out to the reasonable satisfaction of the architect. There was, however, an important provision as to variations and extras, and this provided that the contractor should, when authorised by the architect, vary, by way of extra or omission from the drawings or specifications; such authorisation was to be sufficiently proved by any writing or drawing signed by the architect. No claim for an extra should be allowed unless it had been executed under the provisions of (Clause 5 of the conditions of contract (as to local and other authorities, notices, &c.), or by the authority of the architect. His first point was that the respondents, having had the goods delivered, and having, in fact, used them, there was an implied contract.

The Lord Chancellor asked what the respondents said to this?

Mr. Sankey said they contended that there ought not to be inferred an implied contract. His second point was that the architect had power to vary, and could direct what was to be done.

The Lord Chancellor asked if there were any provisions as to sub-contracts?

Mr. Sankey replied that there was a provision that all specialists, merchants, tradesmen, or others executing any work or supplying any goods for which prime cost prices or provisional sums were included in the specification, who might at any time be nominated, selected, or approved by the architect, were declared to be sub-contractors employed by the contractor.

The Lord Chancellor read Section 20 of the conditions of contract (sub-contractors), and observed that if that were read literally it might have the effect of taking away a good deal of the authority of the contractor.

Mr. Sankey, continuing, said the goods would come under the head of "Joiner and Ironmonger" in the estimate submitted by the contractor. He submitted that Mr. Ward, in ordering the goods in question (door handles) from the appellants, was acting under powers conferred on him by the contract, and the respondents were accordingly bound to make payment for them.

Lord Dunedin remarked that finding goods lying on one's floor and imagining that they came from some unknown benefactor, or were to be paid for under some other and unknown contract, was altogether foreign to one's everyday experience.

Mr. Sankey agreed, and contended that the goods in question were supplied to and accepted without objection by the respondents. They used the handles as part of the goods to be provided under the contract, with the knowledge that they had been supplied by the appellants as sellers on instructions given by the architect under the contract. In conclusion, he submitted that the Court of Appeal was wrong in holding that in the circumstances of the case there was no promise implied in law or equity that the respondents would pay for the goods. The Court of Appeal should not have reversed the finding of Mr. Justice Hamilton, who tried the case and was right in his decision.

The Lord Chancellor said this was a case in which they must hear the respondents, and Mr. Radcliffe, K.C., then addressed their Lordships. He contended that the appellants had failed to prove the facts necessary to support the alleged implied promise, and that they had failed to establish that Mr. Ward was agent of the respondents. That on the facts proved and admitted, Mr. Ward, if he acted or professed to act as an agent, did so on behalf of the London Cinematograph Co. (1909), Ltd., and that the respondents did not, and could not in law, adopt the contract so made. He further maintained that the goods when delivered on the site were the goods of Mr. Ward or of the London Cinematograph Co., and that there was no evidence, or, alternatively, it was not established, that the respondents were ever called upon or required to enter into any contract of purchase, and did not in fact purchase the goods from the appellants.

Lord Dunedin: If you had sent the goods back you would have had a very good case.

During the course of further argument by the learned counsel, Lord Dunedin observed: It all comes back to a question of common sense. If this had been a beautiful statue of Venus it would have been a different thing, but being door handles it does not appear so unreasonable.

The Lord Chancellor: This case teaches me more than I knew before of the perils of an architect's position.

Mr. Radcliffe continued to argue that the position of a builder constructing a wharf or anything of that kind where he had to purchase a lot of material was in a very different position to the contractor here.

The Lord Chancellor: Do you contend that this was not a contract to build a complete cinematograph theatre?

Mr. Radcliffe replied by contending that the appellants had failed to substantiate any implied promise to accept and pay for these goods.

Lord Dunedin: Have you ever built a house? I have.

Mr. Radcliffe: Yes, I have.

Lord Dunedin: It is usual to submit door handles from which to make your choice.

Mr. G. A. Scott followed Mr. Radcliffe for the respondents, and during the course of his address Lord Dunedin remarked that people were frequently asked to buy things which were sent to them, with a request that if accepted the money in payment should be remitted. Fountain pens, for instance, were sometimes sent in this manner, and one was asked to pay, say, 7s. 6d. for them. Did counsel suggest that a person was entitled to keep and use the pen, and then decline to pay for it?

Without calling upon appellants' counsel to reply to the arguments submitted for the respondents, their Lordships delivered judgment, allowing the appeal.

The Lord Chancellor said this had been an unfortunate litigation involving a matter of only £142, and yet the case had had to come to that House. Two learned Judges had decided one way on this question and two another, but after hearing the very able arguments of respondents' counsel he found himself unable to come to any other conclusion but that Mr. Justice Hamilton was right. "A" brought goods, and "B" knew that they were not a gift from "A," but "B" uses them in his work; then, *prima facie*, "B" is liable. To whom were the appellants to look for payment? Ward had no power to pledge the Theatre Company's credit. Ward did not himself intend to become liable. The respondents took them and incorporated them in the work they were undertaking at the time. The respondents knew that goods could be ordered from outside people by the architect.

The other Law Lords concurred, and the appeal was allowed, with costs.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Clewes.—Cookery and Handicraft Centre (£800).

BUCKINGHAMSHIRE.

Amersham.—House, for Mr. A. Graham.

Chalfont St. Peter.—Bungalow, for Mr. J. Lilley.

Chesham.—Twenty working-class dwellings, Brockhurst

Road (£4,150). Mr. P. C. Dormer, Council surveyor.

Chesham Bois.—Two houses, for Mr. W. Gomm.

Two houses, for Messrs. Holbeche & Alderson.

CHESHIRE.

Birkenhead.—Public Elementary School (for 600 places), New Ferry.

Sale.—Public Offices, Fire Station, Parish Room, &c. (£10,700).

CORNWALL.

St. Austell.—Twenty-two workmen's dwellings (£4,500).

Mr. E. D. Groves, Council surveyor.

DERBYSHIRE.

Bolsover.—Parish Hall (£1,000).

Brampton.—The "Castle" Inn: alterations for the Brewery Co.

DEVON.

Kingsteignton.—Fire Station, Clifford Street.

Paignton.—St. Andrew's Church: projected completion (£3,000).

DURHAM.

Birtley.—Council Senior School for 400 places (£6,250).

Bishop Auckland.—New Grammar School.

Boldon Colliery.—Public Elementary School for 300 places.

Emmaville (Crawcrook).—Council School: enlargement for an additional 100 places.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

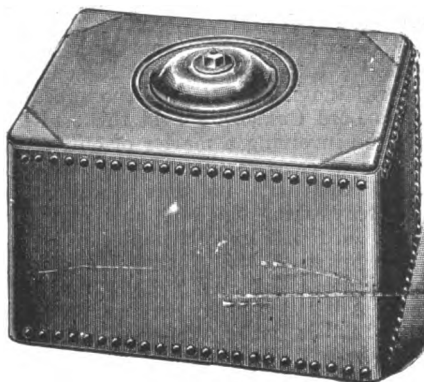
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



IRON KEGS, DRUMS & CANS,
GALV. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.

JAMES GIBBONS

Designer and Manufacturer
of Door Furniture, Locks, Art,
Metal Work, Wrought Iron and
Steel Casements, Electric Fittings,
Gates, Railing, Covered Ways, Lift
Enclosures, Grilles, etc., etc.

ST JOHN'S WORKS, WOLVERHAMPTON.



The principal feature of
the **CHAMPION CHIMNEY POT** is
its magnificent updraft.

For many years the
"Champion" has been speci-
fied by **LEADING ARCHITECTS**,
and has sold in large numbers.

Architects speak highly of
its **SMOKE-CURING** and **VENTI-**
LATION qualities, and admit
it to be of excellent design.

Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.
Ltd., 105 Albion St., LEEDS.

Orr's Zinc White Limited

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.**

ZINC SULPHIDE WHITE (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

DURHAM—continued.

Jarrow-on-Tyne.—Drill Hall premises for County Association. Messrs. Wright & Chapman, A.R.I.B.A., architects, 38 Grainger Street, Newcastle-on-Tyne.

Ryton.—Public Elementary School for 330 places.

Seaham Harbour.—Forty-five working-class dwellings (£8,500).

South Shields.—Medical Officer's Residence for the Workhouse Infirmary, West Harton. Mr. J. H. Morton, F.R.I.B.A., architect, N.E. Bank Chambers. (Also at Newcastle-on-Tyne.)

Spennymoor.—Higher Elementary School: enlargement (£3,600).

Proposed Council School (for 500 scholars), Mount Pleasant (£6,900).

Council Infants' School, Mount Pleasant: addition (£500).

Thorpe.—Infectious Diseases Hospital (£13,000 to £14,000). Messrs. C. Brown, Ltd., contractors.

ESSEX.

Billerica.—R.C. Church. Mr. E. Goldie, F.R.I.B.A., architect, 31 Upper Phillimore Place, Kensington, London, W. Mr. F. W. Jarvis, contractor, Ongar Road, Brentwood. (First portion with accommodation for 150 sittings, £1,300.)

Braintree.—Three pairs of cottages, Grenville Road, for Mr. A. G. Wicks.

Chelmsford.—P.M. Church, Rainsford Road (£1,000).

Tilbury.—One hundred and thirty Council houses.

GLOUCESTERSHIRE.

Gloucester.—Picture Theatre. Mr. H. A. Dancey, architect, 1 Barton Street.

HAMPSHIRE.

Alton.—Workhouse: infirmary. Messrs. Wallis & Smith, F.R.I.B.A., architects, Potter's Lane, Basingstoke.

Brockenhurst.—Pupil teachers' centre (£1,700).

HERTFORDSHIRE.

St. Albans.—County School, Fleetville. Mr. M. A. Smith (of Hatfield), architect.

KENT.

Eythorne.—"White Horse" Hotel: rebuilding. Messrs. Fry & Miller, architects, 52 Castle Street, Dover.

Gravend.—Picture Palace, New Road. Mr. C. E. Lovell, architect, 8 Wrotham Road.

Herne Bay.—Church.

LANCASHIRE.

Banks.—Proposed Church (£3,000).

Elswick.—Smallpox Hospital. Mr. H. Littler, County architect, 16 Ribblesdale Place, Preston.

Patricroft.—Council School, Winton (£4,000). Mr. J. Knight, architect, 5 Cross Street, Manchester.

Wigan.—Girls' High School. Messrs. W. C. Ralph & Son, R.I.B.A., architects, Victoria Buildings, King Street.

LINCOLNSHIRE.

Lincoln.—Bracebridge Asylum: extensions. Mr. F. Parker, architect, 7 Pump Square, Boston.

Landing shop and mess-room, Coultham Street, for Clarke's Crank and Forge Co., Ltd.

House, Queensway, for Rev. R. Echallaz.

Three houses, West Parade and Newland Street West, for Mr. R. L. Holland.

NORTHAMPTONSHIRE.

Northampton.—Public Baths, Bath Street. Borough engineer.

Woodend.—Baptist Sunday Schools. Mr. G. H. Farley, architect, 21b Bridge Street, Banbury. Mr. Constable (of Blakesley), contractor.

NORTHUMBERLAND.

Alnwick.—Catholic Church for Rev. Father Walmsley.

Berwick.—Workhouse: improvement (£4,000).

Newcastle-on-Tyne.—Council School, Bath Lane, for 400 places. Messrs. Harrison & Ash, architects, 14 Grey Street.

NOTTINGHAMSHIRE.

Mansfield.—Mansfield and District Hospital: new wing (Edward VII. Memorial). Mr. L. A. Westwick, architect (£1,200).

Mansfield Woodhouse.—Public Elementary School for 500 places.

Newark.—Girls' Home for the C.E. Waifs and Strays Society (£4,000).

SHEREPSHIRE.

Ludlow.—Cemetery Chapel and Caretaker's Lodge. Mr. W. G. Lane, Borough engineer and surveyor.

STAFFORDSHIRE.

Handsworth.—(See Birmingham.)

Lichfield.—Council Chamber, Mortuary, &c. (£4,000). Council surveyor.

Rugeley.—Three cottages, Tory Row, for Mrs. Whittingham.

Stoke-on-Trent.—Church, Basford.

Uttoxeter.—Town Hall: additions and alterations (£600).

SUFFOLK.

Coombs.—Pumping Station, &c., for East Stow R.D.C. Messrs. J. Taylor & Sons, civil engineers, Caxton House, Westminster, London, S.W.

SURREY.

Woking.—Goldsworth new Council School (£3,000).

SUSSEX.

Balcombe.—Proposed Parish Room.

Littlehampton.—Fifteen houses, Gloucester Road. Messrs. J. Linfield & Sons, Ltd., builders, New Road.

WARWICKSHIRE.

Birmingham.—Picture Palace, Sandwell and Holyhead Roads, Handsworth, for Mr. T. Sanders.

Foleshill.—R.C. Church Schools and Presbytery (£15,000 to £20,000).

WORCESTERSHIRE.

Bromsgrove.—Hospital: tuberculosis ward. Messrs. Bridgewater Bros. (of Cradley Heath), contractors (£1,500).

King's Heath.—Mission Building, Hazelwell (£1,300).

Offenham.—Twenty-six Council cottages (£4,644).

YORKSHIRE.

Bentley.—Premises, Toll Bar, for the Doncaster Conservative Society. Mr. T. H. Johnson, architect, Priory Place.

Boltonstone.—The "Castle" Inn: additions and alterations.

Doncaster.—Masonic Hall, corner of Printing Office Street and Priory Place (£5,000 to £6,000). Mr. T. Robinson, F.R.I.B.A., architect, 15 Priory Place.

Horbury.—Wesleyan Sunday School: alterations. Messrs. Garside & Pennington, architects, Ropergate, Pontefract.

Horsforth.—Pumping Station for U.D.C. Mr. H. Raven, Council engineer.

Leeds.—Picture House, Briggate (accommodation for 1,200 seats). Mr. G. M. Scott, architect.

Scarborough.—Block of bungalows, public café, &c., for the Spa Co. (£3,000).

Shelf.—Sanatorium: alterations and reconstruction, including gardener's new cottage (£2,900).

Wetherby.—Public Elementary School for 240 places.

WALES.

Pwllheli.—Drill Hall, &c., for the Carnarvonshire T.F.A. Mr. E. Evans, architect, 8 Castle Street, Carnarvon.

SCOTLAND.

Aberdeen.—Picture House, for the Provincial Cinematograph Theatre (London). Messrs. Wilsons & Walker, A.A.R.I.B.A., architects, 181a Union Street.

Dunfermline.—McLean School: infants' department and Central Hall (£5,250).

Gartcosh.—Church, Lochend Road. Mr. H. D. Walton, architect, 213 West Campbell Street, Glasgow.

Glasgow.—Eight three-storey tenements, for the Corporation.

Grangemouth.—Board School, California.

Kilsyth.—Parish Church: alterations to Manse (£700).

Millerston.—Maple Bank Cottage: additions and alterations for Miss E. D. Gillespie.

Muirhead.—Tenement, Station Road: alteration for Mr. G. Rathay.

Shettleston.—Boy Scouts' Hall, off Gartocher Terrace Road, for the 35th Glasgow Troop.

IRELAND.

Newbridge.—Barracks: married soldiers' quarters. Director of Barrack Construction, 80 Pall Mall, London, S.W. (Also apply Barrack Construction Office, Curragh Camp, county Kildare.)

Wexford.—Twenty-six working-class houses, for the Corporation.

LIEUT.-COL. G. E. HOLMAN, T.D., architect, is slowly progressing towards recovery, and hopes to leave London on November 17. Upon his return, towards the end of December, all the numerous friends who have sent expressions of sympathy will receive an acknowledgment.

THE UNANIMOUS VERDICT

of REINFORCED CONCRETE CONTRACTORS who INSPECTED

THE "EXPRESS" POWER MIXER

WORKING AT THE BUILDING EXHIBITION—

"IT DOES MIX"

A leading firm of BRITISH Reinforced Concrete Contractors are obtaining an output from ONE "EXPRESS" MIXER of 12 CUBE YARDS Mixed Concrete PER HOUR—THEY NOW OWN TWO "EXPRESSES"!!

THE "EXPRESS"

IS SIMPLE AND EFFICIENT

NO BOILER SCALERS NEEDED

It is now being recognised that for reinforced concrete work perfect mixing is a prime necessity.

THE "EXPRESS" IS USED BY THE WAR OFFICE,
CROWN AGENTS FOR THE COLONIES, Etc. Etc.

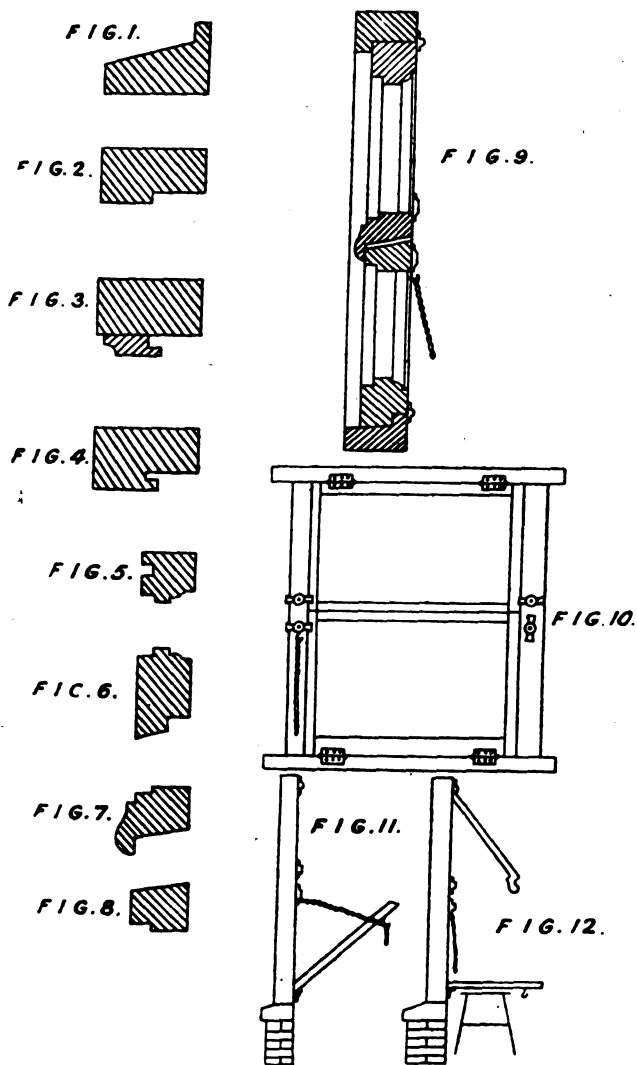
The (U.K.) WINGET CONCRETE MACHINE CO., Ltd.
5, STAR BUILDINGS, NEWCASTLE-ON-TYNE

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E.,
Thanet House, Temple Bar, London.

The first date given is the date of application; the second,
at the end, the date of the advertisement of the acceptance
of the completed specification.

No. 22,683. Oct. 5, 1912.—Windows. W. J. Hewitt,
89 Hawksley Avenue, Hillsborough, Sheffield. A suitable
number of solid timbers of suitable lengths are provided for
framing together, to receive two or more window sashes. The
sill or bottom rail of same is suitably weathered or bevelled,
as shown on fig. 1. The top of frame or head is rebated
as shown on fig. 2. Upon the uprights or styles is secured a
hardwood strip or moulding, upon the inner edge of which
is formed a tongue. This strip or moulding, when secured
to styles, forms a tongued rebate, as shown on fig. 3. This
tongued rebate is formed in the solid upon the styles, as
shown on fig. 4. Upon the outside of the window sash,
styles, or uprights is formed a plough groove, as shown in
fig. 5, to correspond with and fit the rebate and tongue
formed upon the styles or uprights of the window frames.



figs. 3 and 4. The bottom rail of the window sash is formed
(as shown on fig. 6) to correspond with and fit upon the sill
of the window frame, fig. 1. The top-sash meeting rail is as
shown on fig. 7, and the bottom-sash meeting rail as shown
on fig. 8. The sash timbers are framed together in the usual
way to suit the size of the window frame, and complete, as
shown on fig. 9, when the sashes are flush with each other.
The sashes are hung to the top and bottom of the window
frame to swing into the room, using any suitable hinges. To
keep the bottom sash open for ventilation, hooks and chain
or other means are provided (figs. 10 and 11). The whole
forms a secure weather- and rattle-proof window, making it
easy and safe to clean the outside of the glass of both sashes
from the inside of the room, as shown by fig. 12. Oct. 15,
1913.

ROCHESTER Corporation has decided to unite with
Chatham in a scheme of main drainage, the cost to the
city alone being estimated at £150,000.

PATENT SPECIFICATIONS PUBLISHED
NOVEMBER 6, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House,
Temple Bar, London.

No. 16,237. July 11, 1912.—T. K. Irwin, 5 London Wall
Buildings, E.C. Treatment of sewage.

17,106 of 1912 dated Feb. 22, 1913.—Peter Molloy,
18 Rathgar Street, Belfast. Reinforced concrete fencing.

20,584 of 1912 dated March 10, 1913.—J. R. Brunton,
2 Park Lane, Burnley, Lancs. Chimney tops and ventilat-
ing shaft tops.

23,369. Oct. 12, 1912.—The Variable Speed Gear, Ltd.,
Arthur Wilson, and John Robson, all of Broadway Court,
Westminster. Cranes and other hoisting apparatus.

23,434. Oct. 14, 1912.—Joseph Soss, 435 Atlantic Avenue,
Brooklyn, Kings, New York. Hinges.

23,855. Oct. 18, 1912.—Henry Atkinson, 78 Queen Vic-
toria Street, E.C. Fencings used on circular saw benches.

23,860. Oct. 18, 1912.—A. F. Berry, 27 Woodville Road,
Ealing. Electric heating devices.

24,128. Oct. 22, 1912.—V. C. Vickers, Vickers House,
Broadway, Westminster, S.W. Door latches.

24,625. Oct. 28, 1912.—H. E. Bratley, 13 and 14 Market
Place, Sleaford. Collapsible tubes for paint and other
viscous substances.

26,757. Nov. 21, 1912.—J. I. Kirby, 3 Oxford Road,
West Bromwich. Syphonic flushing cisterns.

27,811. Dec. 3, 1912.—James Stanley, builder, 426 Mott
Avenue, New York (Bronx), New York. Building lights.

28,276. Dec. 7, 1912.—D. B. Donald, 7 Trossachs Road,
East Dulwich, S.E., and Alexander Wilson, Ashgrove Works,
Aberdeen. Abrasive wheels for sawing marble, stone, or the
like.

1,349. Jan. 17, 1913.—Alfred Clark, 100 Downing Road,
Bootle. Means for preventing choking of the boiler flues in
kitchen ranges.

2,031. Jan. 25, 1913.—H. H. Hancock, P.O. Box 1936,
Calgary, Alberta, Canada. Apparatus for heating and
ventilating buildings.

11,853. May 21, 1913.—Dated under International Con-
vention May 22, 1912. Firm Beocsi Cementgyari Unio
Reszventytarsasag, of V. Alkotmany-uteza 10, Budapest,
Hungary. Furnaces of kilns for roasting Portland cement.

Any of the above specifications may be obtained from
J. D. Roots & Co.



[The Editor will not be responsible for the opinions
expressed by Correspondents.]

The Late John Belcher, R.A.

SIR, In the *Daily Telegraph* of this morning there is an
excellent (popular) memoir of the late Royal Gold Medallist,
Mr. John Belcher, R.A. But it contains one glaring error
in placing first among this gifted architect's works the new
Sessions House, Old Bailey. Curiously, the same mistake is
repeated in more than one other daily, which, indeed, seem
to have derived their information from some common source.
Presumably the first movement of a gentleman of Fleet
Street when he has to write a short memorial notice is to
consult "Who's Who." In the case of the late Mr. Belcher
that mine of information would prove of but infinitesimal
value. For the biography covers no more than two and a
half lines, thus: "Belcher, John, R.A., 1909; A.R.A. 1900;
architect. Address: 20 Hanover Square, W. Club:
Athenæum." Such modest brevity is almost disconcerting,
and strikes a curious contrast with the ample accounts of
men who have not done and will not do one-tenth as much in
making a national mark.

But how came Mr. Mountford's last great work to be con-
fused with Mr. Belcher's?

I understand that if precedent is followed the vacancy
now caused among the members of the Royal Academy will
be filled by the election of another member of the same pro-
fession. And presumably the choice will fall upon the
popular Mr. Reginald Blomfield, P.R.I.B.A. It is to be
hoped the numerical strength of the representatives of the
Mistress Art will not be decreased by the election of any
painter or sculptor.—Yours truly,

Nov. 12.

B. H. A.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST — COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarsold, Sewest, London." Telephone: Regent 2843.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

ABERTHAW AND RHOOSE PORTLAND CEMENT & LIME CO., Ltd.

MANUFACTURERS OF

BEST BRITISH PORTLAND CEMENT

BY THE LATEST AND MOST
MODERN METHODS AND MACHINERY.

Guaranteed uniform in quality and to pass British Standard specification, or any required specification.
Special facilities for shipment at the Port of Barry Docks.
Excellent situation for home consumption.
Consumers are invited to apply for samples, analyses, and quotations to—

**54 ST. MARY STREET,
CARDIFF.**

Telegrams: "SILICA, CARDIFF."
Telephone: 1367 CARDIFF.

— THE — Universal Concrete & Construction Co. Ltd.

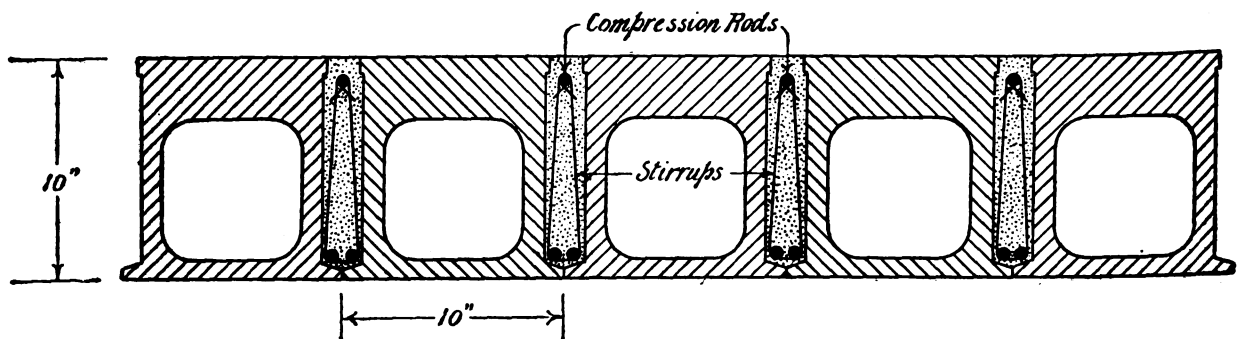
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Vict rla.

**HIGHEST
EFFICIENCY**

**MINIMUM
COST.**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for **Long Spans** without **Beams** projecting below the **Ceilings**, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. **Flues** and **Vents** can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
The Cheap Cottage	469
Notes and Comments	470
"The Architect" Students' Sketching and Measuring Club	471
Japanese Colour Prints at the Victoria and Albert Museum	471
Mr. Lawrence Deller	472
Competition News	472
Illustrations :—	
The Institution of Civil Engineers, London	472
The Royal Institute of British Architects	473
The Architectural Association	475
Birmingham Architectural Association	478
Two Fourteenth-Century Manor Houses (illustrated)	479
The Concrete Institute	480
English Neo-Classic Architects	483
London Orphan Asylum Swimming-bath (with plans)	484-5
Building Progress in the Provinces	487
British Patent Specifications	491
Correspondence	491

FORTHCOMING EVENTS.

Monday, November 24.

Architectural Association: Paper entitled "Some Architectural Notes in Piedmont," by Mr. F. C. Eden, at 8 P.M.

Tuesday, November 25.

Conference on Arterial Road Communication in Greater London at Caxton Hall, Westminster, S.W., at 10.30 A.M.

Wednesday, November 26.

Manchester Society of Architects: Paper entitled "Small Country Houses of To-day," by Mr. Lawrence Weaver, at 6.30 P.M.

London Association of Master Stone Masons: Paper entitled "Mediæval Walled Cities," by Mr. Halsey Ricardo, F.R.I.B.A., at Cannon Street Hotel, E.C., at 7.30 P.M.

Thursday, November 27.

Concrete Institute: Meeting at 7.30 P.M.

Builders' Benevolent Institution: Annual Dinner, Whitehall Rooms, Hotel Metropole.

THE CHEAP COTTAGE.

IN proposing a vote of thanks to the President at the opening meeting of the Royal Institute, Lord Milner referred to the proposal with which we are threatened, of the erection of 120,000 cottages all over England by the State, and he said that it was terrible to contemplate the possibility that in the pursuit of economy the country should be endowed with 120,000 yellow-brick boxes with slate lids. His Lordship went on to deplore the prospect of something very terrible happening to the beautiful English countryside if there should be an enormous repetition of small, cheap buildings, erected without any sort of public control, and he advocated, as a political economist, that this wealthy country should spend £30,000, or even £50,000, more on these erections if they were to be built with public money, so as to prevent the English countryside being ruined by a vast number of unsightly and unsuitable buildings.

This is one aspect of the cheap cottage question, and an important one. It raises, moreover, a very serious difficulty. Probably few would be inclined to deny that the loss of the beauty of the countryside, due, in part, to the picturesque character of the old cottages with which it is dotted, would be a distressing one. Beauty of the countryside is valuable for its refreshing and elevating character to those who are jaded by the stress of modern life, and more particularly to those whose working hours are necessarily spent amidst the ugliness and noise of machinery and manufacture. If the country walk or ride is to be deprived of the charm that it now possesses, its curative and recuperative value would obviously be immeasurably reduced. In this sense it would be true political economy for the additional expense required to make cottages beautiful to be defrayed by the State.

Herein lies the difficulty to which we have referred. It can hardly be expected that individuals who build cottages should increase their cost by exceeding the barest utilitarian requirements in order to include the element of beauty in the new buildings for the preservation of the amenities of the countryside. The more so that as things stand at present, the building of cottages with the barest utilitarian requirements is very, very far from being a profitable, or even rational, investment of capital. If the element of beauty cannot then be expected from the individual, how can it be provided by the State? Is the State to undertake the

whole business of supplying cottages or can the desired result be reached by subsidising the individual? Either course is full of difficulty. The State cannot build as cheaply as the individual. It must have an army of officials and inspectors, swelling the amount of establishment charges far beyond those of the individual who is building either for profit or for investment. The subsidising of the individual is no more free from objection. Someone must decide how far the cost of the cottage is increased by its being made beautiful rather than utilitarian. Someone also must adjudge as to whether the cottage has reached the standard of beauty to which it should attain in order to merit a subsidy. The provision of the judges means expense.

Yet, spite of the expense, it would seem that there is no hope of preserving the amenities of the countryside unless by State action. There are three persons concerned in the matter. The man who builds the cottage, the man who pays rent for and lives in it, and the man who looks at it. It is hopeless in our age and country to expect that the agricultural labourer will pay an extra shilling a week rent so that someone else may have something beautiful to look at. The man who pays for the building of the cottage cannot afford to increase the cost of building without the extra shilling a week rent. The general public, or, in other words, the State, who desires to enjoy the sight of beautiful cottages, harmonious with and adding to the charm of the countryside, rather than detracting from it, must, therefore, be prepared to pay for the extra cost whatever the difficulty.

There are two ways in which a cheap cottage can be built. Or, perhaps, we had better say a low-priced cottage, for cheapness is relative. And there seems just now a tendency to regard the number of sovereigns for which a cottage can be built as the measure of its cheapness, whereas the value given in exchange for the cash should be the paramount consideration. A cottage, then, may be lowered in price by making it ugly, rather than beautiful—even though an ugly building is not always necessarily cheap or even low-priced—or by reducing the amount of accommodation provided. And here we use the word "accommodation" in its widest sense as including, not only floor space and cubic content, but also healthfulness.

In the £110 cottage, built by Mr. Arnold Mitchell, of which we have heard so much lately, we recognise that, whilst in many points of construction economy

has been practised without detriment to the well-being of the occupants, the accommodation has been cut down to a minimum, the sufficiency of which is a matter of dispute between Mr. Mitchell and his critics.

We learn from the *Essex Weekly News* that Mr. Mitchell has got into trouble with the Rural District Council in respect of the model cottage he has put up at Great Baddow. Technically, Mr. Mitchell was in fault for erecting the cottage before submitting plans, but this is a thing that is very frequently done all over the country. On the plans being submitted it was found that they did not comply with the Council's by-laws in certain particulars, viz. that the earth closet was within the building, whereas it should be ten feet distant; no paved area was provided to the open space at the rear or side; also in regard to the height of the rooms. The plans also failed to comply with the Public Health Act, 1875, in regard to drainage and the provision of an ashpit. Under these circumstances the Committee were unable to advise the Council to approve the plans, but they recommended that the building be allowed to remain under licence for a period of twelve months, renewable at the end of that period if the Council thought fit, on condition that the cottage was for exhibition purposes only, and not for habitation.

Thus we see illustrated important factors of cheapness as well as of cost in the building of cottages—the requirements of by-laws and the extent of accommodation. We come, therefore, to this conclusion. If the public, or, shall we say the State, wants cottages for £110 each it can have them. If, on the other hand, beautiful and commodious cottages are required, to a standard that has been thought desirable—it may perhaps be a purely arbitrary standard—then compliance with existing by-laws and the attainment of the desired standard preclude any possibility of the £110 cottage.

And when all is said and done it must be recognised that there is no such thing as a cheap cottage, if by such is meant, or understood, that the low-priced cottage is worth more than it costs.

NOTES AND COMMENTS.

THE assessor in an architectural competition is not infrequently placed in the difficulty that confronted Mr. Percy Worthington in examining the competitive designs for a new day training college and hostel at Hylton Road, Sunderland. The limit of cost in the competition particulars was £21,000, and Mr. Worthington formed the opinion that not one of the eleven designs submitted could be carried out for the specified sum. From a discussion which took place in the Town Council on Mr. Worthington's report it appears that although there was no mention of the usual 10 per cent. margin in the original conditions, yet the President of the Royal Institute, on being asked to nominate an assessor, insisted on compliance with the conditions of the Institute. Some of the worthy aldermen seem to have fancied that the 10 per cent. margin was introduced in favour of some particular competitor. But as all were in the same boat the suspicion was clearly ill-founded.

Presumably the 10 per cent. margin enabled the assessor to avoid in this instance disqualifying the successful competitor, but we cannot help wondering what is the duty of an assessor who finds that all the competitors have exceeded the limit of cost, including, let us say, the 10 per cent. margin. Obviously the promoters would have asked for more than they were prepared to pay. The tendency amongst assessors in such cases has, in our experience, been to select the best design in their opinion, and not that which came nearest to the impossible limit. Now this may possibly be very hard on the competitor who tries to give the promoters the best he can for the money they wish to spend, or as near it as possible, and often, in all honesty if optimistically, keeping within the financial limit. Another competitor, recognising that the limit must be exceeded, disregards it and makes his design

as excellent as he can, unfettered by considerations of cost. It seems to us that the best solution—not, we admit, without objections—is for the assessor to recommend a limited competition, with payment, amongst those whose drawings give promise of able design with a reasonable expenditure.

Although the reproduction of the work of the past is far from being a satisfactory method of showing appreciation, we cannot but feel interested in Sir John Bland-Sutton's dining-hall decorated in imitation of the celebrated Hall of Honour at Susa. The Persian scheme of decoration was explained by Sir John at a meeting of the Persia Society in his new dining-hall, when he pointed out the way in which the Persians had copied and adapted as shown in the columns. The drum of the base of each column was an inverted lotus; the shaft was of fluted Ionic design, and the capital was of a modified Egyptian calyx pattern, above which were Ionic volutes placed vertically instead of horizontally. In place of an abacus there was a bicephalous Assyrian bull. Near the angle of each bull's mouth might be seen a little bead representing a drop of saliva. He found he had to go to France for the beautiful turquoise bricks which formed the frieze and lined the walls. The figures of archers on the walls were those of the famous "Ten Thousand Immortals," the guard of the "Great King." He had arranged them in companies of black and white, having obtained the idea that there were white as well as black "Immortals" from the fact that amongst the fragments brought from Susa there was a white hand of an archer with a javelin. The lion frieze, he said, was probably the most perfect piece of enamel work in this country. In the centre could be seen Zoroaster with the winged disc—the disc being an example of Egyptian influence. So far as was known, the original court was covered in and quite dark; and all they knew about the lighting was that it was open to the south, the beautiful frieze running round outside and the archers being in the colonnades. The triangular spear-heads along the top of the frieze represented flames, and were in keeping with the Zoroastrian religion of fire worship. He had ventured to place electroliers in the ceiling, some of which represented Ormuzd, the good god, but being under the impression that too many gods were like too many bishops, and were apt to quarrel, he had introduced Ahriman, the author of all ills, who corresponded to the Devil.

Dr. Leonard Hill, in an address on "Recent Discoveries as to Health and Ventilation," delivered before a meeting of the Birmingham branch of the National Union of Women Workers, set out his revolutionary views of the preconceived notions as to ventilation, and why we felt discomfort when we occupied confined and fetid atmospheres. It was generally held that the reason we suffered in close and crowded atmospheres was because the air was chemically vitiated—because there was some poison in the exhaled air. There was no truth in that. Carbonic acid, in the most crowded and confined place, might increase by 10 per cent.; its increase was usually not more than $\frac{1}{2}$ per cent. He was not talking of mines or ships, but of ordinary rooms where there were windows and cracks and crannies through which the air could find its way. If a sample of the air from the lung were taken and chemically analysed it was found to contain 5 per cent. of carbonic acid. That was the proper amount that should be there, and the breathing apparatus was so delicately tuned as to keep at that standard. When we took muscular exercise we produced carbonic acid in the tissues, and we breathed a good deal more in order to keep the acid at 5 per cent. If we sat quiet in a room where the excess of carbonic acid was $\frac{1}{2}$ per cent. we breathed almost imperceptibly more so as to keep the lungs at 5 per cent. Carbonic acid could not poison them, because the body was so arranged as to keep the carbonic acid in the lungs at 5 per cent. It was generally supposed that oxygen was diminished in crowded rooms, but the heated

air would always go out through the cracks and crannies and the cold air would come in. It would come through the walls, for bricks were porous, and through ceilings. There were in the air, naturally, 21 parts of oxygen to 100 parts of air. If the air of a crowded room were analysed the extent of the falling off in oxygen might be found to be 20 parts against 21. In the Andes, where the concentration of oxygen was far less than it was in a place where it was diminished by 1 per cent., people lived perfectly healthy lives because the breathing necessary increased the red colouring matter in the blood. Then it was supposed that there existed a chemical organic poison in the exhaled air which was dangerous to health. There was no proof of this. He proceeded to show that dust and dirt were more potent factors of disease than chemical impurity of the atmosphere. But the unpleasantness of fœtid atmosphere is a source of discomfort, and therefore unhealthy, if not actual disease, that Dr. Hill does not seem to us to adequately explain away.

We understand that the new building for the School of Architecture at University College, London, will be open to public inspection daily from Wednesday, November 26, to Saturday, November 29, from 9.30 A.M. to 7.30 P.M. The opening of the University School for architects in London, embracing under one organisation both of the former schools of University College and King's College, is an epoch-marking event in the world of architecture.

The activities of the committees of the Concrete Institute during the past year have been directed to consideration of the second set of regulations with respect to the construction of buildings wholly or partly of reinforced concrete made by the London County Council after they have been preliminarily revised by the Local Government Board, and to the drafting of suggestions for standard methods of measurement for reinforced concrete work. The Science Standing Committee of the Institute has been revising its standard notation for calculations for structural engineering generally and for reinforced concrete in particular, whilst the Joint Committee on Loads on Highway Bridges has been engaged upon and almost completed its report upon the matter which it has in hand.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

We have received a goodly number of pen-and-ink sketches this month, and many of them show a creditable acquaintance with the principles of the medium as well as an individuality of expression.

"Aucassin" sends a sketch of Little Malvern Priory, which in composition, tones and values, and chiaroscuro as well as in rendering of textures is a very satisfactory performance.

"Y Ddraig Goch" has selected an early eighteenth-century house of typical character, at Grendon, Northants, as his study, and has produced a good example of the usual architectural perspective. The roof suffers somewhat from the regularity of the accidental wave of line, almost suggesting the Victorian dodge of a hacked T-square, but the conventional rendering of the trees is good.

"Improver" has sketched part of the courtyard of St. William's College, York, now restored for use as a Church House for the diocese. The drawing, although in perspective, is too diagrammatic and lacks adequate treatment of light and shade.

We are pleased to welcome "W. H. C." to the number of our contributors, and commend his choice of subject as regards picturesque quality, which, although distorted by age from its original lines is still to be treated with due respect to the laws of perspective. "W. H. C." must persevere and practise assiduously, and in time will be able to do fuller justice to this rather difficult subject.

"Plato" sends us a fine drawing of the porch of St. Mary's Church, Oxford, an excellent subject, well rendered.

Mr. Chas. H. Roberts sends a nice "sketchy" sketch of "The King Charles Inn," Poole, Dorset, which, with quite sufficient regard to "values," is a good study in economy of line.

"Ebor" has drawn a subject that is not unfamiliar to us, the Gate House, Little Moreton Hall, Cheshire, a charmingly picturesque piece of grouping. Well handled pen-work needs but little more study of contrast and values to make this quite an excellent drawing.

The famous and well known "Lygon Arms" Hotel, Broadway, Worcester, is the subject of Mr. J. Bernard Mendham's sketch, and is quite up to date, showing the recent addition by Mr. C. E. Bateman. The drawing is a fairly good piece of fine pen-work, though lacking in atmosphere. But why tint your windows in a black-and-white drawing, Mr. Mendham? Do you mean to have them "rouletted" in block? If so, you might have extended the process on the creeper and got better values.

Mr. C. J. K. Clark has found a picturesque subject in the Moot Hall at Elstow, near Bedford, which reminds us of a very similar building, the Moot Hall at Aldeburgh. Mr. Clark's drawing, though bright, requires fuller study of values, as well as of shade and shadow.

Mr. Cyril F. W. Haseldine has learnt something of pen technique but needs to extend his study of black-and-white drawing in the direction of tonality, as well as of contrast. The subject, a window from the Chancellor's House, Lincoln, although of date c. 1490, is hardly worthy of study as a piece of architectural design.

"Toga" is a new-comer to the Club, and we hope to see more of his work in the future. Whilst the sunlit portions of the building in his drawing are fairly treated, the shaded parts are too monotonous and flat in their rendering. One of the great advantages of the pen as a drawing instrument is that the infinite variety of shade and tone in Nature can be readily suggested by its use. Modulation of tone should always be kept in view by the pen-and-ink draughtsman.

Amidst so many contributors we have had some difficulty in settling superiority, but have decided to award prizes of half a guinea each to "Aucassin," "Plato," Mr. Chas. H. Roberts, and "Ebor," to whom, however, there are several others who approach closely in merit.

JAPANESE COLOUR-PRINTS AT THE VICTORIA AND ALBERT MUSEUM.

If England vaunts itself of its superiority over Japan in certain respects, it is yet true that the country owning allegiance to the banner of the Rising Sun can give points in other respects to the British Lion, and thus the temporarily disturbed balance is readjusted. Here and now we are concerned only with the art of colour-printing, and it is undoubtedly true that at a period when the art was in swaddling-clothes in England it had attained a notable stage of growth in Japan.

As for England, her old-time broadsheets and crudely-coloured picture-books can only be tolerated in retrospect when we regard the present-day excellence in regard to colour-printing in these isles. The Japanese began to feel their way in this art about the beginning of the seventeenth century, and in the course of a hundred years attained a degree of skill notable in the extreme.

Mr. R. Leicester Harmsworth, M.P., having generously lent to the Victoria and Albert Museum a portion of his fine collection of Japanese colour-prints, and, as a result of the painstaking labour of Mr. E. F. Strange (of the Department of Engraving, &c., of this Museum), these having been arranged, catalogued, and described, the public is enabled to view with intelligent appreciation the works submitted to inspection. They occupy three rooms in the Museum, severally devoted to the three notable periods of progress. It is of interest to note that "the Japanese colour-print is the joint product of three workers: the

artist-designer, the engraver, and the printer. It is printed from the upper surfaces of series of blocks, one for each printing used, and without the use of any press—the whole being handwork in the fullest sense of the word." We have quoted from Mr. Strange's interesting foreword to the catalogue, and its detailed perusal will prove advantageous.

There is a general feeling that the Japanese lacked a knowledge of perspective, and in view of the work customarily submitted to the public, such a feeling is justified. Yet it would seem as if the knowledge was there, though its merits might be unrecognised. Attention may be directed to the one exhibit of the work of Torii Kiyotada, showing a street scene and one of peculiar interest; this is good from the standpoint of composition, colour, archaeological value, and perspective, the appreciation of the latter quality being observable. And in other prints dispersed throughout the collection the same attention in greater or less degree is apparent; especial attention may be directed to No. 134, by Toyoharu (1734-1813), "The Hachiman Temple at Fukagawa, Yedo," where the effect of distance is most pictorially realised; also we may note a contemporary print by Utagawa Toyokuni, portraying the upper storey of the Chôji-ya, though the figures here seem to us to be over-scaled in relation to the apartment. But we find it difficult to accept the explanation offered to us, that the general contempt in which the use of perspective was held by the Japanese was the result of objection to realistic display; for their artists revelled in realism in certain directions, when, for instance, they were engaged upon depicting birds and flowers; we may call attention to the one exhibit of the work of Shôjo Kyosai (1831-89), showing a crow on a plum-tree, and also to the golden pheasants by Koriyasai (c. 1720-82).

The flow of line is well appreciated by Japanese artists, and if there is a weakness in regard to portraying the human figure and facial expression, perhaps this, too, will be attributed to an objection to realism. The snowscapes by Hiroshige (1796-1858) are surely very natural and at the same time poetical. The general effect of the prints on exhibition is one of dull and subdued colouring, far removed from what we are accustomed to connect with Japanese productions. We welcomed the exceptions, all too few in number, such as those by Hokusai (1760-1849) from the series of "Thirty-six Views" and "The Hundred Poems explained by the Nurse"; similarly, too, with some of Hiroshige's creations and with the exhibited work of Sadahiro and Yeisen.

In many instances we note schemes of dainty and, in many more, of harmonious colouring; but that is another matter after all. Notice "The Five Famous Beauties of Yoshiwara," by Yeizan; "Kite-flying Party," by Toyohiro (1773-1828); and "Satsuki, Seed-sowing Month," by Shigemasa (1738-1819).

Much more deserves notice, and much more will receive the attention due from the public. Here we must rest satisfied with advising the latter to attend in its thousands and tens of thousands to inspect this most interesting exhibition.

MR. LAWRENCE DELLER.

MR. LAWRENCE DELLER's exhibition at No. 2 Egerton Studios, Yeoman's Row, Brompton, shows him to be a portrait painter of no little power, both in oils and in water-colours, as well as an artist of freshness and versatility. His water-colour drawings of the interior of St. Paul's Cathedral, and his more ambitious work—the interior of Lichfield Cathedral from the western extremity of the graceful Early Decorated nave—sufficiently indicate his grasp of architectural detail, intricate drawing, and subtle atmospheric effects of colour; but for some reason portraits take rank above the cleverest landscape and architectural work, and Mr. Deller's portraits call one away from his very excellent water-colours and etchings by their strong human interest.

Mr. Deller's latest work is a portrait in oils of the late Dean of Lichfield (Dr. Luckock). In this, as well as in other portraits, Mr. Deller gives us his sitter in an air of tranquil reality, quite devoid of parade or affectation, an interpretation which relies entirely upon sound and sober technique, a method which should carry the young painter far. Mr. Deller is now engaged upon a portrait of the present Bishop of Lichfield.

COMPETITION NEWS.

BATH.—The King Edward Memorial Committee have accepted the amended design submitted in competition by Mr. Newbury A. Trent, sculptor, of Chelsea. The memorial shows a bronze figure of Peace on a granite base with a medallion of the late King.

BURNLEY.—The Board of Management of Burnley Hospital have passed a resolution that competitive designs be invited from architects in connection with the proposed extension to the Victoria Hospital, providing for two or more additional wards, a nurses' home, an additional operating theatre, &c. It is estimated that the work will cost about £30,000.

DUBLIN.—The Corporation have adopted the recommendation of the assessor (Mr. Albert E. Murray) that Messrs. McDonnell & Reid, of 20 Ely Place, Dublin, be appointed as architects for new municipal offices in Lord Edward Street. The cost is estimated at about £55,000.

HINDLEY.—The Urban District Council have appointed Mr. Herbert Wade, of Blackpool, as architect in the competition for designs for the new Council School at Platt Bridge.

ILLUSTRATIONS.

THE INSTITUTION OF CIVIL ENGINEERS.

THE new premises of the Institution of Civil Engineers have been erected from designs by Mr. James Miller, A.R.S.A., F.R.I.B.A., selected in limited competition. Not only is the building a conspicuous example of modern architectural thought of an elevated character expressed in the language inherited from our Renaissance predecessors, but it is illustrative of the ability of present-day architects to combine sculpture with architecture.

The main entrance to the house is in Great George Street, and the group of sculpture which is placed over the portals has for its centre the crest of the Institution, which is flanked by two figures symbolical of theoretical and applied science. The seven panels over the windows in the front of the building contain emblems in sculpture of the Empire, the centre panel representing the United Kingdom, and the others Canada, Australia, New Zealand, South Africa, India, and the Crown Colonies. The two large sculptured motives on the pavilion ends are in illustration of the achievements of engineering on land and sea. The panel designed for the corner block, yet to be built, will represent the control and utilisation of the forces of nature.

Portland stone has been employed for the whole of the vestibule and hall, which is lighted by a circular well on the first floor and surmounted by a dome which is carried to a height of 78 feet above floor level. The entrance hall, from which the staircase we illustrate this week gives access to the upper floors, is one of the notable features of the building. On the immediate right of the entrance is the north reading-room, which, with the adjoining south reading-room, occupies an area of 3,230 feet. Both the reading-rooms have been finished in walnut, the walls being constructed in large panel surfaces. From the south reading-room access is gained to the Council chamber, 45 feet long by 33 feet wide, finished in oak. A committee-room and a small hall comprise the rest of the accommodation on the western side of the ground floor. That on the east has been reserved almost entirely for offices.

The main rooms intended for the use of members are on the first floor. Placed in the front, overlooking Great George Street, the main library is a lofty room 147 feet long by 28 feet 6 inches wide, and use has been made of all the old oak fittings and panelling, the new panelling necessary owing to the increase in size as compared with the old library being in the same style. A similar apartment on the second floor is to be used as the upper library. The great hall, which is the dominant feature of the new house, extends for 100 feet along the Princes Street side of the building, and is 45 feet wide and of the same height. It is the grand apartment of the Institution. The walls are finished with a marble dado, from which rise marble pilasters with plaster panelling in between. The metal-faced capitals and bases were executed for Messrs. Marsh, Jones, Cribb & Co., decorators, Leeds, from the architect's designs, by the Elbron Metallising Co., of 42 Berners Street, W. The entrance door to the hall presents features of interest, and the ceiling is an excellent example of restricted decorative design. The three large panels which separate the hall from the lecture theatre are hinged, and will enable the theatre to be made an annexe of the hall when desired. The theatre has been built in imitation of the meeting hall at the old premises of the Institution, and is of exactly the same dimensions.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Royal Institute was held on Monday last, the 17th inst., at Conduit Street, W. Mr. Ernest Newton, A.R.A., Vice-President, occupied the chair.

The Late Mr. John Belcher, R.A.

Mr. E. Guy Dawber, acting as Honorary Secretary, said it was with deep regret he had to announce the decease of Mr. John Belcher, R.A., their distinguished Past President and Royal Gold Medallist. Mr. Belcher's connection with the Institute dated back to the year 1869, when he became an Associate. He was elected a Fellow in 1882, served the Institute on the Council and various committees, and was called to the Presidential chair in 1904, holding the office for two years. As President of the Institute it fell to him to preside over the International Congress of Architects, held in London in 1906. Those who took part would recall the admirable manner in which he discharged the onerous duties of his position, and the self-sacrificing devotion with which he threw himself into the task of making the Congress a success, not only delivering a very able opening address at the Guildhall and presiding at the principal meetings, but contributing also a well-thought-out paper on the subject of the education of the public in architecture. Gratifying tributes were paid to him by the various Architectural Associations of the Continent and the United States represented at the Congress, who showed their appreciation of his conduct of the proceedings by bestowing upon him the Honorary Membership of their Societies. There could be little need to remind architects of Mr. Belcher's distinguished services to their art. His achievements were the admiration of them all; nowhere has the judicious use of sculpture and painting been more successfully applied. The building of the Institute of Chartered Accountants is a standing monument to the happy results that can be attained by the sympathetic collaboration of the architect, the sculptor, and the painter. The estimation in which his work is held was demonstrated in 1907, when by the unanimous vote of his brother-architects he was presented with the Royal Gold Medal for Architecture. Mr. Belcher, too, had won well-deserved recognition by his literary work. The exhaustive volumes on the English Renaissance which he produced in collaboration with Mr. Mervyn Macartney, are universally known and appreciated. His more recent work, "Essentials in Architecture," was published with the laudable object of stimulating popular interest in architecture and of teaching the public how to distinguish what is good and what is bad in the art.

Mr. E. Guy Dawber then moved the following resolution: "That the Royal Institute of British Architects desires to express its high estimate of the valuable and productive labours of its late distinguished Fellow, Mr. John Belcher, R.A., in furtherance of the advancement of architecture, and of the eminent services he rendered the Institute as member of Council and President; and that the Institute do record its sorrowful regret at his demise, and do offer to his widow an expression of sympathy and condolence with her in her bereavement."

Professor Beresford Pite said he begged to have the honour of seconding the vote of condolence; he would suggest that to the name of the widow might be added that of the son, who was himself an Associate of the Institute. Mr. Belcher himself had an ancestral connection with the Royal Institute. His father was very well known for the refined classicism of his work, and had a high business reputation, which their late colleague maintained at its highest point in the somewhat critical circles of the City. There was no need to speak of the warmth of Mr. John Belcher's nature, or of its sympathy and enthusiasm, of his modesty—the central part of his character—of his great refinement, of his ingenuousness in design, of his ingenuousness in charm. All those who knew him were very conscious of these things. Then there was a deep, underlying charity of nature; indeed, he was one of the kindest men one could meet: again and again one had to marvel at the great liberality with which he met every appeal. His artistic nature was many-sided; he was a member of a very old and distinguished musical circle, headed by Professor Ella, a name now almost forgotten. His friendships extended not only to his professional brethren, they established themselves with all those who were brought into business contact with him; the leading builders of the day became his fast friends—as, for instance, Mr. Howard Colls and Mr. Dicksee. All brought into contact with him felt the subduing charm of his friendliness, which refused enmity.

Nothing he ever designed or ever did was characterized by an error of taste. His art was like himself, sympathetic; his personal sympathies were with the picturesque and romantic rather than with the severe Classic. Probably this was in contrast with his early training. Young men felt the enthusiasm of his example. He was always moving where he felt the current of art life was leading, and feeling his way to a sympathetic originality. He may be said to have felt the breadth of art as a whole more than any other architect. In connection with the sculptors he stands in a position of peculiar dignity and importance. The late Mr. Armistead and Mr. Thornycroft were among his oldest friends; he also gave commissions to men like Mr. Harry Bates, Alfred Drury, and others. He found enjoyment in all beauty, and has reflected this sympathy in his works. With regard to the Institute, their loss was an especially grievous one. He came somewhat late in life to the councils of the Institute. When he was in high office they were struck with his clear and graceful elocution. His presidency was also noticeable for the personal influence he brought to bear on his professional contemporaries. He was always extending the artistic sympathies of the body. He personally influenced many distinguished members to join the Institute as Fellows, including Reginald Blomfield, Ernest Newton, Professor Lethaby, E. S. Prior, Mervyn Macartney, Gerald C. Horsley, E. J. May, Halsey Ricardo, Thackeray Turner, Ambrose Poynter, Walter Cave, E. L. Lutyens, Detmar Blow, and that large group connected with the Art Workers' Guild. At the Royal College of Art the genuine sympathy of Mr. Belcher with students was delightful, but might be said to have been truly like him. For many years his work on the Later Renaissance, in which he collaborated with Mr. Macartney, exercised the greatest influence on every architectural school in the country. At the end he passed away quite swiftly. The Institute had lost a friend, a noble and sweet character, whom they deeply regretted, and they ventured to express their sympathy with the bereaved relatives.

The vote of condolence was passed standing.

Mr. E. Guy Dawber said he regretted to have to announce also the decease of another distinguished member, Sir Alfred East, R.A., Hon. Associate, elected 1903. An obituary notice had appeared in the *Institute Journal*. A vote of sympathy and condolence would be sent to his nearest relatives.

Mr. E. Guy Dawber said he had also to announce the following further losses by death which the Institute had suffered since the last meeting in June, viz.:—

W. Chasen Ralph, Fellow, elected 1903.
John D. Webster, Fellow, elected 1882.
Ernest A. Runtz, Fellow, elected 1908.
Joseph Johnson, Associate, elected 1882.
William Murray, Associate, elected 1881.
E. C. Henry Bird, Licentiate.
W. J. Oliver, Licentiate.

Heino Schmieden, Hon. Corresponding Member of Berlin, elected 1903.

The Secretary announced that the following gentlemen have passed the examination held by the Institute under Section 140 of the London Building Act, and have been granted certificates of competency to act as district surveyors in London, viz.: W. E. Brooks (Associate), J. P. Edwards (Licentiate), F. S. Hammond (Licentiate), and H. C. Sands (Licentiate).

Mr. H. V. Lanchester, F.R.I.B.A., then read a paper, illustrated by numerous lantern views, on

The Wesleyan Methodist Hall, Westminster.

A competition was instituted by the trustees of the Twentieth Century Fund for the purpose of obtaining the design for this building

Sir Aston Webb was appointed assessor, and the conditions provided for a double competition, the first stage open to all, from which six or more designs were to be selected for further development. The option was reserved of inviting six other architects to take part in the final competition, but the assessor, having selected nine designs, advised that further invitations were unnecessary. The other architects taking part in the second stage were Messrs. Crouch, Butler & Savage; Cheston & Perkin; J. S. Gibson; Vincent Harris; Mallows & Cross; James A. Swan; Waddington, Son & Dunkerley; and the late William Flockhart.

In the first competition Messrs. Lanchester & Rickards submitted two designs, one adopting an axis from the Victoria Street corner. However, this diagonal scheme did not reach the second stage, and, consequently, the design they

had to develop was on the east and west axis, though it ultimately bore little resemblance to the original sketch.

In common with many other competitors, Messrs. Lanchester & Rickards had placed the large hall, which was the main feature of the building, on the ground floor, being influenced in this course by the reduction in space effected by the omission of the numerous staircases such a hall would require. In revising the conditions for the second competition the trustees added a clause requiring the large hall to be placed on the first floor. As the result of this condition, the large hall, rising above the rest of the building, definitely dominated the composition; and, the height being considerably increased, the immediately adjacent blocks lose importance in dictating the axial line, which has to be determined in relation to the masses of the Abbey and the Houses of Parliament. Of course, what is really needed is the opening up of the east front by setting back the line of the Westminster Hospital; and, now that the removal of the hospital has been decided on, such a course becomes obviously desirable, not only on architectural grounds, but also because Broad Sanctuary is quite inadequate to the requirements on ceremonial occasions. The London Society has taken the question up, and is considering how best to forward the scheme.

But to return to the building itself. The principal requirements were:—

- (1) Large hall, seating 2,500; (2) small hall, seating 600;
- (3) library of the same size (these two to be thrown together on occasions); (4) conference hall; (5) a room of the same size (now occupied by the London City and Midland Bank);
- (6) tea room, to seat 1,000; (7) four committee rooms;
- (8) a block of offices.

The large hall was, as already said, required to be on the first floor. The basement was suggested for the tea room.

Messrs. Lanchester & Rickards placed 2, 3, 4, and 5 together on the ground floor, and 7 at a slightly different level to the west of them. The offices formed a block occupying the whole of the west front above and below 7, and the only internal areas are between this block and the large hall. The position of this large hall involved careful study as to the lighting of the space under it, but by recessing the north and south fronts adequate light was secured for the rooms in the centre of the building.

The site was somewhat limited, considering the amount of accommodation required, and this necessitated a treatment in planning that gave rise to a criticism of it as "budget architecture," implying that, structural requirements being met, the various floors are packed in without relationship to a uniform and definite architectural scheme appearing at each level from foundation to roof. This latter would naturally be one's ideal, but it is impossible of attainment when a proportionately large amount of carefully specified accommodation has to be placed on a limited area.

The main staircase was found a very difficult problem in planning. On account of the large proportion of the first floor taken up by the great hall the only treatment that seemed satisfactory was its return backwards over the entrance vestibule, and this involved an exceptional amount of study in order to avoid effects that would have been noticeably forced and uncouth. In view of the fact that the hall is 35 feet above the street, this staircase has been frequently noticed as disguising the height to a marked degree, and the architects feel it a great compliment to find that it has been imitated where the original difficulties leading to its inception did not exist.

Reinforced work has been extensively used in the interior, for the reason that it is more homogeneous than any of the combinations of steel rollings with concrete and other materials. The choice fell on the Kahn system as providing a bar that, once in position, was visibly adjusted to take up the strains provided for before filling in commenced. Of course, there are other systems that achieve this aim. The only points where slight cracks have shown themselves are where, in order to economise depth, resort was made to steel sections. It may be desirable to give warning that the published strengths of steel beams are not reliable; though they are well within the limit of safety, greater depth must be allowed where the slightest deflection will disturb the work above them.

In the general framing up of this building the heaviest weight accumulated at the eight angles of the main dome. Starting from the top, we have the outer square dome, a relatively light shell, the much heavier concrete inner dome 50 feet lower, the concrete and masonry of the pendentives and the arches across the transepts; then the girders carrying the overhanging galleries, a proportion of the walls and

floors below this, and, finally, the weight of the piers themselves. With allowances for wind pressure, &c., the weights reaching the foundations at each of these points range from 500 to 600 tons. To equalise the weight as much as possible a steel raft was provided under each pair of piers, which gave a distributed weight of two tons to the foot super. Under the whole of the remainder of the building was a reinforced concrete raft of varying thickness, and the weight on this generally was about $1\frac{1}{2}$ tons per foot super. The eight main piers were formed of steel sections, at the angles of a 3-foot square, tied together with steel lattice-work, and entirely encased and filled with cement concrete. The remaining piers were of reinforced work with vertical bars and horizontal lacing. The basement floor is 7 feet above the bottom of the concrete, which gave the requisite depth for distributing the weight under the heavier piers and for the provision of ventilating and pipe ducts. The large spaces on the basement floor were covered with thin reinforced concrete vaults, carrying a flat floor about 8 feet above the street, which is the ground floor of the main building. (The floors of other parts are at different levels.) The floors above this are constructed of reinforced concrete, with hollow tiles to reduce weight.

We now come to the architectural raiment with which this structural body is clothed for the purpose of indicating at a glance the intent of the building. As this intention was a complex one, comprising several demands, the problem of their due expression was a difficult one.

First and foremost it was desired to have a monument to commemorate the vast activities of Wesleyan Methodism during the past century. Then there was the present use of the halls for religious purposes. Then again the housing of all the business organisations underlying the various social activities of the Wesleyan Methodist movement.

A Gothic design was obviously unsuited. A design solely suggesting a place of worship would unduly subordinate the other demands, while one looking too business-like would destroy the idea of a commemorative monument. The architects tried, to the best of their ability, to suggest the breadth of conception that a monument demands without obscuring either the religious or practical aspects. For example, the form and treatment of the dome was decided with the intention of its conveying an idea neither too definitely religious nor too definitely secular. The architectural character of the façade, while largely based on religious symbolism, was more specifically intended to strengthen the idea of a monument to the strenuous and sustained effort of Methodism, and in many of its details arose almost naturally from the type of architectural design employed with a view to express activity and force.

Criticism has more than once levelled its guns at some of the objects employed conventionally to enhance this expression, but the important matter is the character of expression as a whole; and if the details merge legitimately into this their use is justified. Criticism of the kind mentioned is not that of the artist, but rather of those who, while blind to the full comprehension of a design, imagine that they can assess its merits or demerits by the analysis of its component parts. It is possible to read almost any architectural feature as a symbol. The column and its entablature are rarely structural in their intention, and as what one mind grasps as symbolic another regards from the standpoint of decorative beauty, the architect can only work on his own instinctive methods and leave to his appreciators the form of emotion that his efforts will evoke in their minds.

DISCUSSION.

Sir Aston Webb, C.B., R.A., in proposing a vote of thanks, said that he did not know until he read the paper that Messrs. Lanchester & Rickards had sent in two designs for the preliminary competition. He sometimes thought that when a competitor sent in two designs he should say which of them he meant to win upon. As assessor he found, of course, many of the designs having their axis on the angle, and very clever and able some of them were—in fact, so clever one hesitated to adopt them. He looked at them over and over again, and finally arrived at the opinion that the winning design had the germ of a fine thing. Subsequent events showed there could be some use in a double competition. The Trustees had not at first realised the great problem they were putting to architects. When the second stage of the competition had arrived they decided that the great hall should be on the first floor—and, as he thought, rightly so. That hall would be comparatively seldom used, while the smaller halls would be in constant occupation. He himself had no doubt in the

second competition as to Messrs. Lanchester & Rickards' plan being the best. He recommended it to the Trustees, and on explaining to them his reasons they were very reasonable, and saw eye to eye with him. The design was therefore accepted, and the architects were accepted with it—which is as it should be. The only suggestion which he offered was that the main entrance should be made a little larger; that was not, however, adopted. Mr. Lanchester had suggested that the Broad Sanctuary might be widened by pushing back the buildings to be erected later on the site of Westminster Hospital, and that this should be done by the Government giving about a third of the area of His Majesty's Stationery Office immediately behind, and taking in exchange a corresponding area fronting Broad Sanctuary. If this could be arranged it would be a very good thing, and it was to be hoped that some fresh building line would be adopted, whatever the new building might be. When the Wesleyan Methodist Hall was started he thought their building ought to have been set back and the roadway of Great Smith Street widened. By such means the design, instead of being mutilated as now, would be complete. That involved no reflection on the architects. He knew such a course was suggested, but it was not carried out. It would have made an enormous difference to Westminster. In listening to the paper they would have liked to have heard a good deal more about the construction. The architects had employed reinforced concrete in a very able and successful manner. Reinforced concrete work was still in its infancy, and in such an important job one would like to know more about it. In the United States they had used the material much more than here. He would like to ask Mr. Lanchester privately whether he would do the work again in reinforced concrete if he were given the chance. He ventured to think that in choosing a dome as their main feature the architects chose the only right main feature possible for that special position. There were towers all round. Also they were well advised to choose a dome of such a form as not to compete with St. Paul's, and which would look like the dome of a great hall. He agreed with Mr. Lanchester that the discussion of small details was beside the mark, and that the character of expression as a whole was the thing. He looked forward to the day when the money-changers would be swept out of the temple; the letting of part of the premises as a bank revealed the commercial spirit with which so many, even religious, adventures were managed. They were not going that night to criticise, but they were going to congratulate Messrs. Lanchester & Rickards on carrying out a great building nobly and successfully, and upon adding to the beauty of that part of London. Artists were not the critics who found fault with little things; they were delighted to show appreciation of a great work. The people who go about finding fault were not worth consideration. Personally he considered it a noble building.

Mr. Corderoy said he had one qualification for the task of seconding the vote of thanks—namely, a whole-hearted admiration for the building. They of the Wesleyan Methodist Church considered that it absolutely fulfilled all requirements, and gave them a building to commemorate the centenary. Everyone who assisted on that work must congratulate themselves on the success achieved. The problem of getting in all the diverse accommodation was no easy one. The revised position of the great hall made it no easier, though there is no doubt about the difference in effect. The minor accommodation had had to be sacrificed to it. With regard to the exits from that hall, they were, in his opinion, one of the most successful features of the design, and in practice they worked very admirably. The *foyers* surrounding the large hall were a great advantage for the purposes to which it is put. He had seen a great deal of this particular method of reinforced concrete construction, but he had never seen such variety of application to any single building. It would probably be a surprise to many to hear that the cost of this Wesleyan Methodist Hall has worked out at just one shilling per foot cube. This was a remarkable result. It was, indeed, the cheapest building of its class with which he was acquainted.

Mr. Dove said he had frankly to admit he could offer no criticism at all on the building. From the time they commenced the excavation and came to the bed of sand to the completion of the terminal on the top (which had been variously described as a sweep's broom and a sun in glory) he had had no point of criticism. He admired the boldness brought to bear on the treatment. From when they commenced the reinforcement everything seemed to fit in so perfectly one felt entire confidence in the result. The canti-

lever truss of the galleries was a marvel of construction; there was not the faintest vibration in the completed work. The same remark applied to the concrete dome, which had a great amount of work to do; on one side it carried the heating apparatus. He believed the reason why the Wesleyan Methodist Hall was not set back was largely due to the dilatoriness of the London County Council, and that if the Council had moved at the right time the street would have been widened. He would, in conclusion, like to offer his personal testimony and thanks to the architects for the very happy relations between them and himself. As a builder he had never carried out work where things had gone better. From the commencement to the finish they had not had to draw attention to a single drawing which failed to fit in with the previous drawing.

Mr. William Woodward said he entirely agreed with the proposal of the Council of the Royal Institute that once in each session they should have a paper read by an architect of some particularly important building erected during the year. He happened to be a member of an important committee of the Westminster City Council, and more than once they had had before them this question of the proposed rebuilding of the Westminster Hospital. One would have imagined that when the site was acquired and a new building erected the hospital authority would, at the least, not desire to have extended their building beyond the present line. But this they intend to do unless they can be prevented. They suggest bringing the main line of their building to the present line of the portico, and they have the power to carry their frontage to a height of 100 feet. If that is done the magnificent building they had seen illustrated that night will be hidden. He ventured to say that if there is any extension it will be on the main line of the present frontage. When Mr. Lanchester spoke of an inner and outer dome it made him think of the beautiful St. Paul's, and made him wonder whether in the Wesleyan building the dome seen outwardly was the dome seen from the inside. If so, Messrs. Lanchester & Rickards were still more to be congratulated.

After Mr. Poole, the sculptor, had briefly spoken,

A vote of thanks was carried by acclamation.

Mr. Lanchester, in returning thanks, associated Mr. Rickards with himself, as he had been merely the mouth-piece of a joint effort. When the Wesleyan Trustees came into possession of the site they offered to sell a strip to the Westminster City Council, so that the building should have to be set back, but the Council did not see their way to coming to terms. The proposal to enlarge Broad Sanctuary was rather a matter for the nation, because there is already enough room for ordinary traffic, but not enough when the King comes. Neither his partner nor himself had regretted anything they had done in the way of reinforced concrete. They had varied their method, and they were not whole-hearted either one way or the other. The building, in fact, contained specimens of all kinds of construction. Not a single serious accident occurred during its erection. Mr. Woodward might be interested to hear there was a difference of 50 ft. between the inner and the outer dome.

The Chairman announced that a special general meeting will be held next Monday to resume consideration of the schedule of professional charges. The by-laws require the presence of forty members, of whom at least twenty-one must be Fellows, to enable this business to be proceeded with. A former meeting, to be held last July, had to be abandoned owing to the want of the necessary quorum. The Council trust that on this occasion there will be a full attendance of members, in order that this important matter may be concluded.

NATIONALITY IN ART.*

By Mr. H. M. FLETCHER, F.R.I.B.A.

(Concluded from last week.)

It would be interesting to speculate how far climate, and especially atmosphere, is responsible for national traits. The air of Greece is what Shakespeare calls "nimble"; there seems to be nothing between you and the sun—outlines are expressed with the divinest purity, the rocks and marbles and hills seem to beat back all the light that comes to them from the sky. Cross the Adriatic to Italy. There is a kind of sumptuousness in the very atmosphere that clothes the mountains with colour and answers to, or causes, the sum-

* A Paper read at the Architectural Association on November 10.

tuousness that is the note of the Italian genius. And with us, throughout our artistic development the most curious thing, considering what manner of men we are in other respects—empire-builders, freedom-lovers, constitution-makers—is our love of the pretty, the small, the homely. Is not this to be traced to the small scale of the English landscape, divided by hedgerows, bounded with woods and copses, changing at every county with the geological variety of the soil, and limited for many days in the year by the moist atmosphere that cuts off everything beyond a range of two or three miles?

Well, what is to be done about it all? What is to be the outcome? Is nationality a valuable factor in art? Are we to foster it by cooping each nation up in its own box till inbreeding produces a weedy brood of insularities and provincialisms? Or shall we let loose a flood of washy cosmopolitanism that will break down all barriers and produce an average man and an average art all over the world? Science is seeing to it that the first alternative shall not come about. No barriers are proof against Marconi and the flying man. To guard us against the second, which, to my mind, is far more disastrous, and would indeed take much of the gusto out of life, we must trust to human nature. Half a century ago it seemed as though this deluge might come to pass. Was it not Macaulay who looked forward with a pleased certainty to the extinction of the smaller nationalities of these islands, if not of the whole world, and the final victory of the English language over all others? Happily, as it seems to me, these utilitarian prophecies have not come off, and we live in the midst of a strong and quite spontaneous revival of national feeling. Ireland, Scotland, and Wales each is asserting herself and laying claim to her own in language, history, institutions, and arts.

The world is so full of a number of things,
That I'm sure we should all be as happy as kings,

sings Stevenson's little boy. If we had to add in a footnote that the "things," instead of being delightfully various according to the country in which we found them, were all turned out of the one mould of the Beaux-Arts or the Academy, the happiness of the average king is just about what we should feel! What fun, how stimulating to come across brasswork from Birmingham in Japan! Do you know that fascinating book on a fascinating subject, Pierre Loti's "Un Pèlerin d'Angkor"? It is a description of what, ever since I first read Fergusson, has seemed to me one of the most astonishing and mysterious buildings in the world, the great temple of Angkor or Nakhon Wat, hidden away in the jungle of Cambodia. Fergusson himself, not exactly a passionate writer, is stirred to eloquence by the accounts he had heard of it and the photographs he had seen, and an artist in travel and language like Loti is not likely to minimise its romance. The whole book is absorbingly interesting—the journey up the river and through the jungle; the half-ruined temple, inhabited for centuries only by a handful of chanting Buddhist priests; the cloisters, 800 ft. square, their back walls covered from end to end with huge bas-reliefs of mythical battles and dancing girls; the great bats that hang from the vaults; the many hundred yards of sculptured cornice, formed of the gaping jaws of myriads of three-headed snakes. But the passage I am going to quote does not deal with Angkor, but with another temple which he saw in the earlier part of his journey at Pnom-Penh, the capital of Cochin China. It runs as follows:—

"To-day, on a solitary prow at the sun rose at half-past six, I passed through the gate of a courtyard of the palace, a great white-paved courtyard. Alone in the middle of the brilliant empty space a graceful white-and-gold pagoda, its roof bristling with golden points; alone on the sides of the little solitude two tall and surprisingly-pointed golden belfries, based upon rockwork adorned with orchids and rare plants. Not a soul to be seen. But the silence that prevails wears a character of its own; a rustling, like a drone, mingles with it, but disturbs it not—a vague, airy music, not immediately to be defined. It is the chiming of the little silvery bells that hang from every point of the belfries and roof; the lightest breath sets them faintly ringing.

"This pagoda is quite new; it blinds you with the whiteness of its marbles and the sparkle of its gold. The window-heads are of gold filigree, clear-cut like jewel-work on the snowy background of the wall, and topped with pointed spirelets. Its roofs, covered with gilded tiles, have horns at every angle—long, long horns that bend downwards, curve up again, threaten in every direction! Compared

with these horns, those of the Chinese pagodas would look quite rudimentary, barely protruding. Many giant bulls, you would say, must have been despoiled to ornament this strange temple. The various peoples of the yellow race have been possessed for ages with this idea of horned roofs for their religious buildings, but the Cambodians lead them all in extravagance.

"Steps drawing near, heavy steps. Ah, three elephants! Without noticing me they cross the court. Full of purpose they seem and of business, like people who know what they are about. The sound of their tramp and of the bells on their collars breaks for a minute the æolian chime that falls so gently from above, and then, as soon as they have passed, again the musical silence. It is adorable here in the semi-cool purity of the morning.

"The open doors of the pagoda invite one to enter. The ceiling and the walls are all glistening with too brilliant gold, and my steps echo on the brand-new sheets of silver with which it is paved all over. So even now in our own age there are still countries imbued with the idea of building such sanctuaries as this!"

Now, can you conceive, or, having conceived, can you welcome a cosmopolitanism which would overspread these countries with bastard European buildings, and turn their designers and craftsmen into hangers-on of the Ecole des Beaux-Arts? Yet under present tendencies it is a very real and imminent danger.

Of all problems connected with nationality, it is hard to imagine one more baffling than that of the new city of Delhi. Is it capable of an ideal solution? Probably not. The conditions fight against it. The traditions of the two races are too radically different, the form of administration, the government of a conquered nation by migratory alien officials is contrary to the spirit of continuity and goodwill essential to any co-operative form of art. Add to this the usual conflict between the stateliness of a great capital and the outcry of modern commerce for convenience at any price, the utterly different angles from which all questions will be faced by designers and workmen, the Office of Works' attitude adopted towards all buildings by the Imperial authorities. No European, one must remember, goes to India just because he is an artist and sees there an opportunity for his life-work. Such artists as may from time to time be found there are mere birds of passage on the look out for artistic "copy," studies of intense light, vivid colour, native costumes, and the like. Those who make their life there are soldiers or men who care about problems of administration, road-making, justice, questions of conflicting religions, famines, bridges. There is an infinite deal to do, too few men and too little time to do it. Moreover the type of mind which grapples gladly with work of that kind is one to which artistic questions make little appeal, so that when you have got your architects out and set them to work they will find the surroundings far from sympathetic. Are they to work in a European manner or a native, or a compromise? The questions have been raised, and, in the absence of any details of the final scheme beyond the ground plan, we may still discuss them. If the first, they must give up the hope of enthusiastic help from their workmen, and resign themselves to the uncongenial task of imposing their own ideas from above. The second alternative—a Mohamedan, Jain, or Dravidian style adapted to the complexities of modern planning by English architects, may be abandoned after one shuddering glance. Conceive a whole city of Brighton Pavilions! One can, however, imagine, as a sort of compromise, a city of pillared porches and verandahs laid out, as to its main lines and masses and structure, in accordance with the published plan, but with all details of marble, stone, cement, or plaster left to the native workmen; and if there is any remnant of the old skill and sense of style left, one can imagine this finally shaping into something sumptuous and suited to the climate and the light. If fertility in conception can ensure success, Mr. Lutyens should succeed. But there are limits to human optimism when one pictures all the struggles to be gone through between idea and realisation, architecture, and officialism; and if he does succeed I declare he will deserve deification, with a special sect devoted to his cult, like John Nicholson after the Mutiny.

I am not advocating any hide-bound conservatism in regard to nationality in art. The nationality that requires to be cosseted and guarded from the sight or touch of any other nationality is probably not worth keeping. I do not curse the Renaissance, the greatest remover of national artistic landmarks that the world has known till the age of science. Free intercourse in ideas adds a further ripening and fortifying to a mature and strong nature. Stag-

nation is death, and intercourse is life, but surely highway robbery is a morbid form of intercourse. "I take my good things when I find them," said Molière. Yes, but he transformed them into his own before he gave them to the world. Let us study the art of France, of Italy, of Japan if you will, but only on condition that whatever we take from them we transmute in our own crucible. A very odd passage in "Paradise Lost" thus describes the Tower of Babel:—

God . . . in derision sets

Upon their tongues, a various spirit, to rase
Quite out their native language, and instead
To sow a jangling noise of words unknown.
Forthwith a hideous gabble rises loud
Among the builders, each to other calls
Not understood, till hoarse, and all in rage
As mocked they storm: great laughter was in heaven,
And, looking down, to see the hubbub strange
And hear the din; thus was the building left
Ridiculous, and the work Confusion named.

Well, the bequest of that Confusion to posterity has been, among other things, the temples of Karnak, the Parthenon, and Chartres Cathedral, perfectly different and differently perfect. The bequest of the unanimity that preceded it was a misbegotten tower that failed even of its silly object. Which will you choose?

DISCUSSION.

Professor W. R. Lethaby, in proposing a vote of thanks to Mr. Fletcher, remarked that he agreed so entirely and wholly with what had been said in the lecture, he could not think of anything to say about it. Indeed, it would be absurd to do so. Mr. Fletcher had been convincing. It was worthy of comment that their little enthusiasms used to last fifty, twenty, or ten years; but now we seem to go through them in two years or six months. It was difficult to state what should be done to arrive at nationality in Art, except to absorb everything one could, and still try to be one's self. The direct theft of detail from other countries was sometimes very thin. The rush there was at present to copy fourth- or fifth-rate Paris things was very trying; it was false in policy. Englishmen could never hope to reach there, because they were English while the authors were French. A thing might be perfect as the work of a Frenchman, and yet not suited to this country. The present-day tendency was an effort to be fortieth-rate French.

Mr. Halsey Ricardo, in alluding to the excellence of the paper, spoke of the humour of it as being a quality not often found in architects' writings. Like Professor Lethaby, he laboured under the disadvantage of being in entire agreement with the author. He was therefore led to cavilling at it merely. Mr. Fletcher in a very light-hearted way proposed they might give up rules and not use them. Perhaps so; but only when those rules have been mastered: not before. Rules were the synthesis of past wisdom. They formed the confines of the area of what is known up to the present date, but no further. Every man who could create fetched up against those confines, and jumped over them or burst his way through. That was called "advancing," and necessitated the rules being revised. Yet it was humiliating that one did not know whether the world really was advancing. An object-lesson might be found in a visit to the Egyptian Room of the British Museum, by beginning from the south end, where the figures date perhaps from the early years A.D., and then going further and further back until the figures were carved 7,000 years before Christ and noting their wonderful quality. Nationality was really a very complicated story. We English believe ourselves to have been profoundly influenced by the Normans; yet 150 years later we were doing our architecture distinctly different to the French. There was no material differences in the climate or the geology and so on of Picardy and Wiltshire to account for the difference between Amiens and Salisbury. History showed time and again how the conquered nation came out "top dog" in the end. The Greeks were an illustration of this, and we are under the impress of their art to this day. All that is called Classic architecture was really Greek. Their Roman conquerors were fine builders in the big sense of the word and in the rough; but when it came to the finishing touches it was done by the Greeks. At the Renaissance the artists fastened not upon the buildings of the Romans, but upon their Greek decoration. National art, unless was meant the folk songs or ballads, was, as already stated, an extremely complicated story. As regards the possible treatment of Delhi, it was to be remembered that in the past what the Greeks and Romans did was to plant their temples and buildings on foreign

lands, and they tried also to reproduce exactly their life on foreign shores. The only case of compromise was perhaps in Sicily, where the original civilisation, the Saracen, and the Norman all worked side by side and then mingled.

Mr. C. F. A. Voysey thought the difference was not sufficiently recognised between what had arisen out of human effort, what was natural, and what was divine. For instance, the variation in the quarrying of stone has had a definite and distinct effect upon the architecture of nations. Where they had little stones they used arches; where they had big stones they employed lintels. This country had not lost its sense of nationality until within the last few years. It used to be very English. It would still be thought strange if an Englishman was to commence talking his native tongue with a foreign accent. Yet no one thinks it strange for an English architect to design in a foreign manner. There seemed to be lacking a reverence for what we had been ordained to live with and to live by. The reason why the profession was now so troubled was it had forgotten its environment after having seen such lovely things abroad. It was ridiculous to think we could do the same lovely things when we had not their material or their way of thought. He would like a little more attention to immediate conditions and a little less attention to foreign work. "What you see is your own; what you sketch you steal." Mr. Fletcher had quoted Stevenson as asserting "technique is art." That was a most ridiculous falsehood, because it claimed exactly what technique was not. It was as bad as saying that language was thought. Art was the manifestation of thought and feeling, and these were not material. Technique was purely material. Indeed, one got a most perfect contrast between matter and spirit by those two words Art and Technique. It was to be wished architecture could break out from the modern tendency to collectivism. Then they would acquire individuality, and from that they would get a national style. So long as there was a belief in scholarship they would not get any living art at all.

Mr. Maurice E. Webb, M.A., confessed he perfectly disagreed with what Professor Lethaby and Mr. Voysey had just said. Indeed, he did not feel quite sure that Mr. Fletcher believed it either. To-day there were opportunities and facilities existing which had never been before. Probably they had all read recently of an Italian masterpiece stolen out of a church near Florence, which had turned up at Charing Cross in a handbag. Well, everything came to Charing Cross. And architects nowadays had to live around there. It seemed to him the more architects travelled the better, for they had to learn always, and pick up everything they could. Of course, it was right to urge they should put as much national feeling in their work as possible.

Mr. W. G. Newton, M.A., thought some of the remarks let drop that night would be so dangerous to students that the meeting ought to have been held *in camera*. What, for example, would their travelling students think on hearing Mr. Voysey's dictum that what they saw was their own and what they sketched they stole. The whole paper was disturbing to those who were still wondering how they were to educate themselves. The object of the Beaux-Arts training was to give students a method of education, and not a type of design. The Beaux-Arts system has the advantage of an old tradition. It would be wrong to rely entirely or even largely on other people's types of designs; but it may be very helpful to copy other systems of education.

Mr. W. Curtis Green, the President, in putting the vote of thanks, said the paper was full of fine thought finely expressed. Mr. Fletcher had showed he was in possession of the broad principles of art. He himself was rather interested in Mr. Fletcher pointing to the employment of the dreadful word "art" as one of the symptoms of the disease, for he used to object very strongly to people using it. But he hoped he was getting wider-minded now. National art was most healthy where it was least talked about. There was not the least doubt in his mind that architects had to study their art in any countries they could by obtaining an insight into its local principles. Until he had mastered the principles the architect was useless and helpless. It had been observed that up at the top all art was not only comparable but one. In this question of nationality in art they were, as it were, stepping round a cone, and the higher people got up and the nearer to the top the nearer they were to one another. Until they were above the rules they must stick to them.

The vote of thanks was passed by acclamation.

Mr. H. M. Fletcher, in responding, described the Architectural Association as a most terrifying audience for their unerring instinct for putting a finger on weak points. He might mention that in writing the paper he had not started out to fight a battle, but to find out what he thought about

the subject. However, he did not know he was much further, except, perhaps, in the knowledge that it was useful for students to cultivate a fanatic state of mind. Mr. Ricardo rightly asserted that rules were the outcome of their predecessors' experience. But it was not much good learning rules until the student dug down and found out the principles below them. Then students could not go very far wrong.

The President announced that owing to Mr. L. March Phillipps being unavoidably prevented from reading his paper on November 24, Mr. F. C. Eden has kindly promised to read a paper entitled "Some Architectural Notes in Piedmont."

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

MR. W. H. BIDLAKE lectured on "French Gothic as a System of Construction" before a large gathering of members of the Birmingham Architectural Association in Exchange Buildings on Friday evening. The President (Mr. G. Salway Nicol) was in the chair.

Mr. Bidlake remarked at the outset that with such magnificent specimens of Gothic art as were in existence he thought he was justified in speaking of it as a system. Gothic architecture, he proceeded, reached its fullest expression in the great French cathedrals in the neighbourhood of Paris. It was an architecture of very small stones, and, not only that, it was an architecture of very active stones. In the period preceding Gothic the stones were to some extent inert, because they were in such mass and quantity that the active in proportion to the mass of the material was comparatively small. In Gothic only sufficient stone was left in the piers to support the weight of the vault and in the flying buttress, reared like scaffolding into the open air, to resist its thrust. For the rest, sufficient wall was left round the building to enclose it; the remainder became practically a sheet of glass. There was little doubt that when France was overrun by barbarians and the Roman Empire came to an end the upper, or northern, part suffered very much more than the southern. So far as the south was concerned, there were various experimental styles of building. What was it that really produced Gothic architecture? What was the leaven that leavened the lump? What was the vitalising force which made the whole a living whole? He thought if they looked for causes they would find it was the desire first of all to cover the building with a stone vault. When they had solved the problem of how to cover the whole with a stone building there resulted the fullest development which they saw in the cathedrals in the neighbourhood of Paris. It was the introduction of the stone ceiling which really led to Gothic architecture; that was the vitalising force that lay behind all the movements, whether of windows or of external elevation or of interior sections. In the end, what with the triforium, walled passages, and open arcades, the masonry of the cathedral became almost completely cellular. In this development there was the desire to rear the building into the air, and Mr. Bidlake pointed to the remarkable elevation of 140 ft. in the case of Amiens, and of 160 ft. in the case of Beauvais. By means of lantern slides and diagrams the lecturer proceeded to show the nicety with which the builders had balanced the thrust and the counter-thrust, vaulted pressure, and buttresses in their construction. It was in the cross-vault they had the potent force which revolutionised architecture in the Middle Ages. In the Gothic development cross-vaults were adopted to economise in construction, and the system of economising material having been introduced into the vault, it was introduced into every other part of the building. He contrasted the dome style of cross-vault to be seen in South-Central France with the conical vault to be found in the West of France. He showed the introduction of a stiffening transverse arch, which, he said, led to that particular sort of vault so characteristic of the French, which we had illustrated at Canterbury, but which was so comparatively rarely found in this country. In the dome-ribbed vault the ribs really did very little work: they introduced the archway. As a rule they did not find the archway in France—only in one district. It had no special function beyond that of being more or less ornamental. Hence when they came to the fully-developed French style of vault they found the transverse rib thicker than the diagonal, although it was the diagonal rib that did the work. It was very interesting in these days, because it was one of those instances of the continuation of a member who had become more or less obsolete in the development of the

organism. We had, as Darwin had showed us, not a few peculiarities of structure which reminded us of those palmy days when we used to have a little bit more liberty than we had now. There was really no necessity why the transverse rib should be stronger than the others. In this country we did not make it so, but it was the continuation of the tradition of stronger transverse arches which they saw in the earlier style in the south and the west. He created much laughter by showing an instance where the strong transverse arches had given way and the others had remained intact. Going on to speak of the period of fully-developed Gothic, Mr. Bidlake said that in cathedrals in the East of France they found very fine galleries. Laon Cathedral was an excellent example, Niort was another. We had already developed that gallery, as at Ely, Winchester and Peterborough. They were made for processions, and he supposed those processions died out in time. Ritual perhaps changed in some respects, but whatever the cause the gallery died out, although for the time being it served the very useful purpose of carrying the buttress of the outside wall right away almost to the springing of the vault itself, as there was really no necessity for a flying buttress, because the vault of the gallery was a counter-thrust to the thrust of the vault. It was intended at one time to give Westminster Abbey a gallery like that. Of course it had a triforium, and it was intended to vault the triforium. Proceeding, the lecturer touched on the buttresses, and said that these represented that economy of material which Gothic builders carried out in every portion of a church. They placed masonry just where it was wanted and nowhere else. The more they examined the great buildings of the Gothic period the more they were struck by this economy of material. Having concentrated their thrust on certain points the builders had eliminated the necessity for a wall, and, as a matter of fact, logically they did away with the walls altogether. Referring to the height to which the buildings were reared, he pointed out that there were examples of a number of devices adopted in order to carry out the balance, and certainly they were very ingenious; but at the same time they brought out very vividly how completely French Gothic at its best was a house of cards. The buildings could hardly be trusted to stand the moment there was an earthquake. French cathedrals were the great civic churches, the churches of religious fraternities, and one town was in rivalry with another. If one town built a cathedral to a certain height a neighbouring town would be sure to overtop it. How precarious was the balance of these great cathedrals! And with what extraordinary nicety they had—he would not say calculated but felt what they were doing. Within a few years of the completion of one cathedral the vault fell in. The builders had gone too far altogether, and had to reconstruct it by strengthening the piers, which collapsed at a certain point and brought down the whole system of flying buttresses. They put in double the number of piers they had in the original design and strengthened the building in other parts, and the buttresses were chained in with irons. That had been the fate of more than one flying buttress—they required chaining in with irons. He had seen, he thought, about thirty French cathedrals, and he thought Bourges was far and away beyond the rest of them. He saw the west front under a brilliant and gorgeous crimson sunset, and his eyes were partly dazzled with the splendour of the light. Inside was a depth of gloom. The windows were filled in with magnificently painted glass, and hardly any of the brilliant sunset light struggled in. He saw a great pier going right away into space and vanish. He had never seen anything which impressed him so much as that wonderful pier vanishing into space. Then he saw an outline of the vaults, and found the main vault absolutely lost in the same way. Then he saw some weird figures of saints in the magnificently painted glass looking at him with their great goggle eyes. They had great white eyes with lead round, and they had pupils put in with lead in too, and they looked as if they had great spectacles also. He had by that time got into such an agitated state of mind that he felt inclined to run. In this cathedral, Mr. Bidlake proceeded, they found united the simplicity and intricacy so characteristic of Gothic. It also showed a complete epitome of the development of the window. French Gothic was practically the structure of a bird's wing. There was not a single portion of it one could afford to cut away, and if they did collapse would result. The whole thing was trembling with nervous activity. When they looked at a building like that they thought of the simile of a race-horse compared with a carthorse. A carthorse had a



THE GATEHOUSE, NORTHBOROUGH MANOR HOUSE.

superfluity of strength; they felt it. But in a racer they felt the extraordinary nerves and activity and life of the animal, and a building like this seemed to be infused with something of a human look. It seemed to be expressive of the same combination which they felt in a highly educated and highly strung human being. This last word in Gothic architecture had something so much akin to the human being that they projected themselves into the material itself. In fact, he could hardly think of anything in the works of man in which the triumph was more complete than to take inert matter and make it living with one's own personality, and that, he thought, was what the Gothic builder had succeeded in doing.

Mr. Harrison proposed a vote of thanks to Mr. Bidlake, and described him as a walking encyclopædia on architecture.

Mr. Cottam, in seconding, said it seemed to him that, although flying buttresses had a certain amount of charm and gave a sort of mystery to some of the buildings, they were things rather to avoid than to cultivate. It did not fall to the lot of many architects to execute vaulting to begin with, but no doubt the architects who had it to do were in a great deal better position than their forefathers were, because in the present day they had so many facilities in the way of reinforced concrete, which lent itself extremely well to works of that sort. Mr. Bidlake had referred to the springing of vaults, and he (the speaker) thought that at Amiens Cathedral the courses were carried out horizontally for a considerable distance. He thought that was a very excellent thing, and they saw that Mr. Pearson had availed himself of it at St. Alban's Church, which was certainly one of the finest churches in this neighbourhood. There was a great dignity about it—a wonderful simplicity, directness, and repose. He often walked by it for the sake of having a sort of architectural tonic.

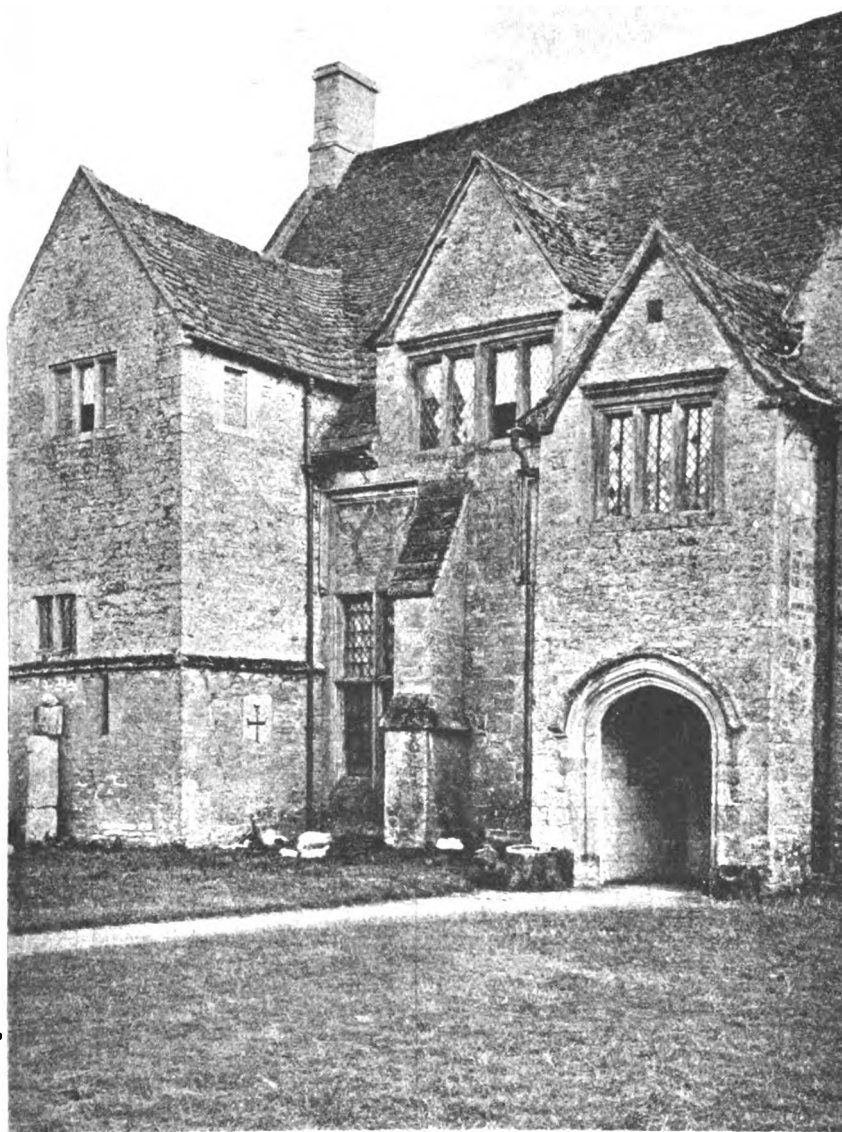
The President remarked that the Gothic period was a great period of the architecture of adventure. They were labouring in the dark to a great extent at the time, and this great architecture and these engineering feats were done more by a sense of instinct than by any careful mathematical calculations. They did so much, as the lecturer said, more from what they felt than from what they knew. They had many failures, but in spite of them struggled on and developed some very conspicuous architectural successes. Mr. Bidlake had emphasised some architectural features in the development of Gothic building which had been dropped, and which might easily now in the design of modern cathedrals

be resuscitated. The galleries which traversed the top of the aisles of the earlier cathedrals were certainly fine and noble features, and it would be interesting if further light could be thrown on the actual use of those. Yet perhaps such explanation was hardly necessary, inasmuch as they probably existed from the fact of their great architectural value, and he thought that was quite sufficient reason for their existence. The cathedrals they had been considering were great civic buildings—in quite a different category from the village church or the buildings of monastic orders. They were buildings which expressed a distinct civic pride, erected by the people, and in this religious manner because the people were impregnated with the intense Christianity of the period. But undoubtedly they were great civic achievements, and the rivalry between one city and another, which had been accomplished in those buildings, and which they saw in many other ages in architectural developments, was a thing to lay well to heart, and, he thought, required considerable fostering.

The vote of thanks was most heartily accorded, and Mr. Bidlake's reply brought the proceedings to a close.

TWO FOURTEENTH-CENTURY MANOR HOUSES.

On the verge of the great Fenland, about six miles north of Peterborough, there are two manor houses of especial interest to the lovers of ancient domestic architecture. The first stands at the southern entrance to the village of Northborough, the gatehouse abutting upon the Lincoln Road. It dates back to the middle of the fourteenth century, and although not so large as formerly it still retains sufficient of its ancient features to enable the expert to conjure up its original appearance. The Gatehouse, of which we give an illustration, has lost its upper chamber, and the range of stabling on the right was erected in the reign of Charles I. The main gateway gives access to a quadrangle, on the southern side of which appears the manor house, and on the northern the gatehouse and stabling already referred to. Any buildings there may have been on the east and west sides of the courtyard have disappeared. As will be seen from the illustration, the external details of the manor house are excellent. The ball flower is continued beneath the eaves, and the west gable and chimney are enriched with crockets. Inside, the doors of the screen remain, and these are richly ornamented with crockets and the ball flower.



NORTHBOROUGH MANOR HOUSE.

Entrance to the house is gained through a porch of Henry VII.'s time.

In 1564 this manor house came into the hands of the Claypoles, one of whom married Elizabeth, the favourite daughter of Cromwell. The Protector, with his Ironsides, was a frequent visitor at the manor house, the latter being quartered in the gatehouse. This fact accounts for the local name applied to the manor house, viz. "Cromwell's Castle." His daughter Elizabeth and his wife both died at Northborough, the former being buried in Westminster Abbey and the latter in the village church.

The other manor house is known by the name of Woodcroft Castle, but that is a misnomer, the house being an excellent example of a manor house of the time of Edward I., and it does not appear to have been designed as a place of strength. The house is on the outskirts of the village of Helpston, at a distance of about three miles from Northborough. There is a station on the Midland Railway at Helpston, which is the most convenient for a visit to both the manor houses referred to in this note. As will be seen from the illustrations reproduced, Woodcroft still retains its moat.

The general plan of the Castle is somewhat unusual, and it is believed that a Norman architect employed by John of Caux, abbot of Peterborough, was responsible for the design.

In 1648 Woodcroft Castle was besieged by the Parliamentary troops, and gallantly defended by Dr. Michael Hudson, Chaplain to Charles I., and a handful of men. Hudson was driven from room to room, until he was forced on to the summit of the eastern tower. Making a desperate effort to escape, he clung to the gargoyle shown in the illustration until his assailants chopped off his fingers. Dropping into

the moat, he attempted to swim ashore, but the soldiers killed him with their pikes. This ghastly tragedy is graphically described by Sir Walter Scott in "Woodstock," Hudson being the original of "Dr. Rochecliffe."

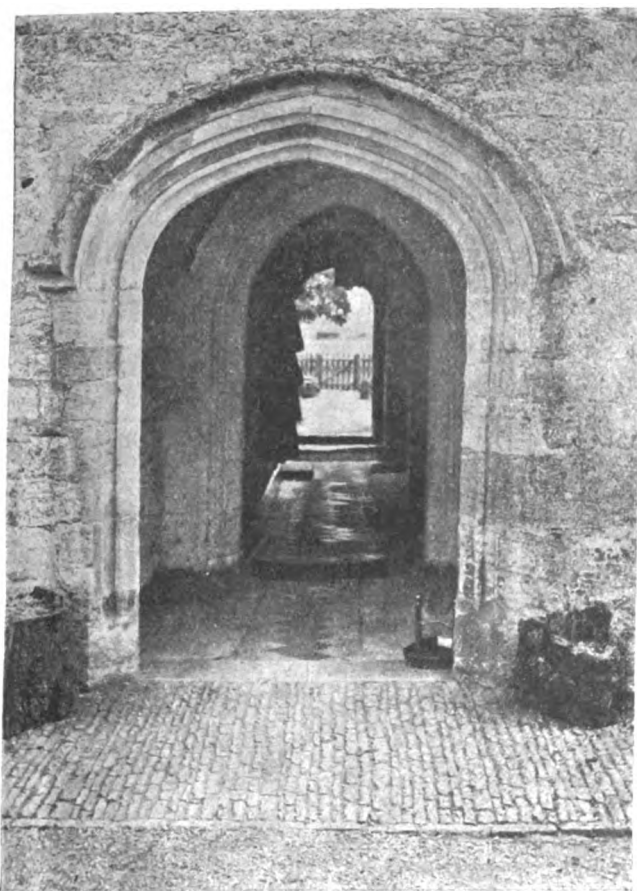
THE CONCRETE INSTITUTE.

An ordinary general meeting of the Concrete Institute was held on the 13th inst. at Denison House, 296 Vauxhall Bridge Road, Westminster, S.W.

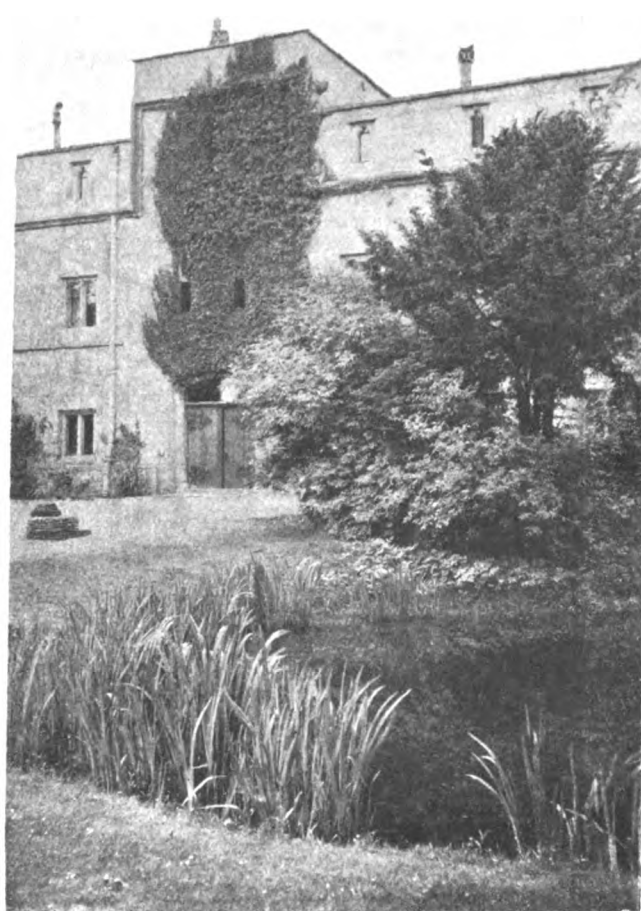
Mr. E. P. Wells, J.P., delivered his second annual Presidential Address. The first part of it consisted of a review of the Concrete Institute's work during the past year. This was followed by some expressions of opinion on practical matters connected with concrete construction which were thought deserving of some emphasis and repetition, more especially in view of what had come to his notice particularly since the first address.

Mr. Wells, in turning to the second part, said he wished to direct particular attention to the absolute necessity of keeping a more careful watch on the cement than has hitherto been the case, especially as regards its storage on the site, though it is necessary, also, to be assured of its quality before it reaches the site of the works, both as it leaves the manufacturers and goes to the agent, and as it leaves the agent for the consumer.

It had come to his knowledge during the past year that in several cases where it was necessary that cement should be of an excellent quality it had been "air slaked" to such an extent that it was next door to being absolutely useless for reinforced concrete work, though it might perhaps have



ENTRANCE PORCH.—NORTHBOROUGH MANOR HOUSE.



ENTRANCE TO WOODCROFT CASTLE.

done for foundations of cheap structures, where any great resistance to crushing is unnecessary, and where rapid increase in strength is not required. It is strange that an air-slaked cement never approaches the strength of a cement which has been gauged and kept in water for, say, any period up to a year, and has then been dried and reground and used for making concrete. With the former the strength is almost nil, but the latter sometimes nearly approaches the strength of the original cement. Of course, if the old gauge cement be heated until it is red, then the same strength may be obtained from it as from the original specimen, but better have a cement on the site that had been ground to flour, from old gauged neat briquettes, than a cement which had been air-slaked, as by becoming caked in the sacks and being afterwards rubbed through a sieve.

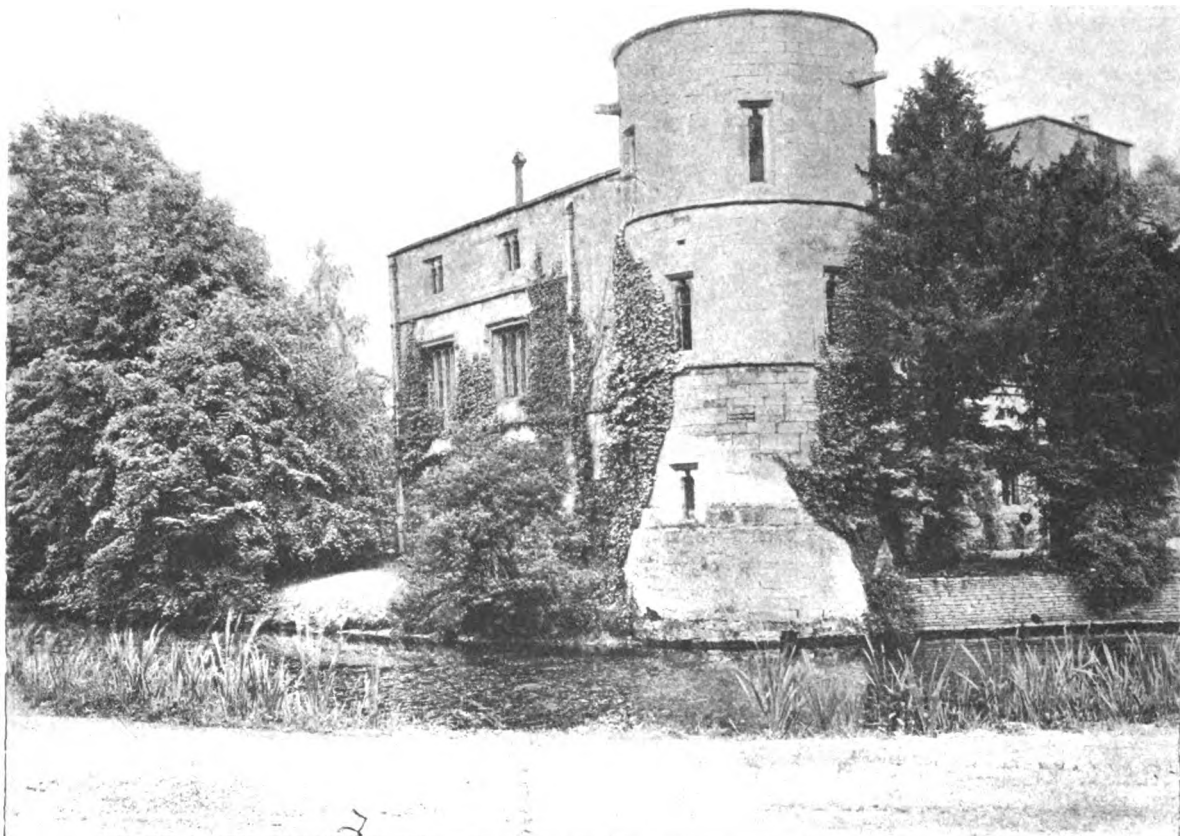
There is another peculiarity which is exhibited by excessively air-slaked cement over what may be called proper cement—namely, that when concrete is made therewith it becomes very hygroscopic, and no matter what its age is, it will always exhibit this defect. Moreover, concrete made with this air-slaked cement will take the colour of the aggregate, and will, as a rule, throw off a very peculiar odour. The concrete made therewith will be very low in crushing strength and in all other directions, and is really absolutely valueless for reinforced work. A case happened with some work about five years ago. It was a raft for a school. One truck-load of cement was used which appeared to be good, yet when made into concrete after a lapse of three weeks was almost in the same condition as when laid, only that the moisture had largely evaporated. After this raft had been laid, the contractors left the work, and the defect was only discovered when they returned to continue their work. The whole of the remainder of the work, which had been carried out by the same firm with the same aggregate but a different freight of cement, was good. The only conclusion was that this particular cement had been kept in store for so many years that it had become inert, or else that it was the sweepings of a cement store which had become hydrated and ground up by constantly treading on it, so that being thus pulverized it was thought still to be a legitimate cement.

Therefore, wherever possible, the cement manufacturer should state when the clinker was ground, how long it has been in stock before being bagged, and when tests are sent with the several consignments, that they have been made from the cement that has been sent and not from the cement from another portion of the store, which may not have been

ground at the same time as the consignment. This recommendation applies to cement when sent direct from the manufacturers to consumer. When, however, the manufacturers send the cement to agents, then the conditions should be made much more stringent, because storage in an agent's store may do, and often does, grievous harm to a cement which, when originally received, may have been all that could be desired. No manufacturer should permit any agent to sell his products unless he is satisfied that the store in which it is kept is so constructed that the cement will be stored in such a manner that no possible chance of injury is likely to take place to it. Most people have very hazy ideas as to how cement should be stored; they still imagine that it should be laid on floors in layers not more than twelve inches thick, turned every third day, and so on, and not used for twenty-eight days; also that the store should be well ventilated, &c. If they would carry out this procedure with a finely ground cement and have an analysis made after twenty-eight days aeration, they would be rather surprised at the loss in lime contents and the amount of moisture that the cement has absorbed, while if crushing tests were made before and after aeration, they would have a practical demonstration of how much loss there was in the compressive resistance.

Contractors and builders very often think that all that is necessary is to lay a few boards on the ground, pile the cement thereon in sacks, and then cover over with a tarpaulin; the more wind that blows on the same the better, as thereby the cement will be aerated and made sound. True, it will be sound, in that it will surely not show expansion or contraction, but neither will it be any good whatever if it be kept long enough in such a situation before it be used. The cement must be carefully stored, and, whenever possible, it should be turned out of the sacks into air-tight bins, where it will keep for many years so long as the air is excluded. The only alternative is that cement should be brought on to the works in casks if it is thought that some considerable time may elapse before it is required to be used. Cement stored in casks when they are well made and lined with paper will keep for years, and the loss in lime contents if kept for two years or more will not be more than 2 per cent., and this will only reduce the crushing strength about 10 per cent.

Where the engineer knows that the cement is A1 there need be no fear but that the work will turn out well; he may sleep in peace, and no tests of the completed structure



WOODCROFT CASTLE OR MANOR HOUSE (Temp. EDWARD I.).

will be necessary, but if the concrete should be inferior then no addition of steel reinforcement in tension is any good. If failure takes place owing to weakness in compression, all the theory and mathematics imparted into the design of reinforced concrete will be of no avail; but if the concrete is good, even 50 per cent. of the steel may be left out accidentally without damage resulting. The exercise of a little more common sense in the design and execution of reinforced concrete construction combined with practical knowledge and experience is better than oceans of theory and reams of mathematical calculations to secure refinements in the amount of steel, when our deductions after all are only empirical owing to the fact that the concrete is a material which increases with age, and does not, like steel, remain a constant.

In addition to watching the cement, a watch should be set on the aggregates, more especially upon the sand. At the present time on the south and east coasts ballast and sand dredged from the estuary of the Thames is almost invariably used. It seems, however, to be getting very much finer, and if any excess be used the crushing strengths up to periods of three months will be very considerably lowered, though after a lapse of twelve months or more the concrete will gradually recover much of its early loss. Early strength is, however, required, so that for ordinary work an excess of sand is undesirable, unless it be in the case of tanks, though in that event more cement should be added.

Many of us have been troubled for many years past by the unsightly contraction cracks that take place in reinforced and other forms of concrete construction, and so far no remedy has been found to stop what may be called the natural law of contraction during hardening and ageing. Where the concrete is subjected to variations of temperature on both sides, cracks must develop, but where concrete is subject to normal conditions some experiments will be made on definite lines to see whether it is not possible to stop this cracking to a large extent. If it is reduced to, say, only 25 per cent. of what is now common, then reinforcing will probably get over the difficulty to a large extent.

A large amount of reinforced concrete has been employed in our Colonies, notably in New Zealand, where some of the constructions have been on a large scale. This is somewhat strange when we remember that timber is so plentiful there. Concrete would hardly have been substituted

unless there had been some very good reason. Probably where timber has been used for sea works the dreaded *Teredo navalis* has eaten into it so rapidly that even though wood be fairly cheap and wages and other materials be costly, the expense of renewals is so frequent that it becomes much more economical to construct once and for all with the more expensive material, for it will more than pay in the long run, even though the capital cost is greater and the interest and redemption much more, while there is also a decided saving by the absence of maintenance charges other than damage caused by accidental blows and shocks. The risk of loss by fire is likewise eliminated. The cement works in that country are on short time at the present, and the amount of work being constructed is small. This is due principally to financial stress, the imports being in excess of exports, so that no excess is left with which to carry out public improvements. Our weather is stated to almost invariably follow in the wake of that experienced in New Zealand, but if we follow New Zealand financially, then the outlook is not a good one, though so far there are no signs of a falling off in the amount of construction done in concrete in this country.

There does, indeed, appear to be a slackening in the steel production of this country, though this is due to the dumping of steel from abroad and a falling off in foreign demand, and not to any lack in home consumption. Structural steel is in great demand, and this points to large buildings being constructed, which in turn means that large quantities of concrete must be used, not only for the construction of floors, but also as a means of protection against fire, and therefore a busy time for the cement manufacturer seems foreshadowed.

This, however, will depend to a very large extent upon whether the price of cement rises or falls. At the present time the rate is extremely high as compared with previous years, and if a further rise should take place in the price of cement it will most seriously hamper not only reinforced concrete construction but concrete work generally. There is a distinct danger in any increase in the price of cement, in that cheap foreign makes may be attracted thereby into the English market, and it is always a most difficult matter when work is being carried out to know whether a poor cement has been brought on the site or not. Already the imports of Belgian natural cement are very considerably increased, and from one's experience of this cement in the

past it is to be sincerely hoped that it will be boycotted throughout the entire country.

It has been the custom of several firms in this country to import what are known as foreign blooms, roll them, and sell them as English steel. It has been my lot, either fortunately or unfortunately, to come across steel so made, and in every instance it only came up to the foreign standard of twenty-six tons per square inch, whereas the lowest limit of the British standard is twenty-eight tons per square inch. In many cases the steel rolled in this country from foreign billets has been as low in tensile strength as twenty-three tons per square inch. So it is desirable to call the attention of all those who are interested in steel for structural work generally and for reinforced concrete work in particular that the tests on steel should be carefully watched. In every case where possible, especially where the work is of such a size that one can afford to pay for tests, tests should be made of the steel by an independent testing engineer.

It has been the practice for many years past, when designs and tenders are required for work, to throw the work open to general competition instead of employing consulting engineers to design the work and then calling for tenders. In many cases this method of carrying out the work has led to a great deal of scamping not only in the design but in the cutting down of the amount of steel and concrete to such a degree that it has been a marvel in some cases that the work has stood at all. In all cases wherever possible competition should be done away with. It is a very rare thing indeed that competition in design and price at the same time serves any good purpose, for it leads to the cutting out of everything that is possible, and the omission of the extra safeguards in case of errors, bad workmanship, and bad material, so as to save expense and enable the lowest tenderer to get the work. Furthermore, the specialist then becomes the servant of the contractor and is therefore unable to properly supervise him, the risks entailed in such a course being self-evident. For some time past there has been a difficulty in obtaining assistants who are capable of designing reinforced concrete work and structural steel work. Modern methods of teaching are largely at fault. At the present time there is too much school and college training and not sufficient practical training in the shops. Of old one had to go all through the shops and work from 6 A.M. to 5 P.M., and so gain an insight into practical work and be able to handle all tools and carry out work. This training enabled one to come in contact with all kinds of designs, and to judge which was the best, both as regards utility and cheapness, or to combine several designs with that in view. At the present day few persons go through the shops; in fact, they think it lowers their social status. The consequence is that they have very little knowledge of practical work except that gained from illustrations in some book or magazine, and when called upon to design works they must have some previous example before them to see how it should be carried out, or must entirely rely upon others for their knowledge. In most cases knowledge has to be gained at their employers' expense.

The old methods of apprenticeship were the best, and better men were turned out thereby, at least from a practical point of view. All the learning in the world is no good unless one knows how to apply it; one may be well up in the theoretical part, say, of surveying, &c., but when it is a question of carrying out a survey, then practical knowledge is required. Wherever possible it is better to have the practical experience first, if possible, of course, securing simultaneously a combination of both. This is not always possible owing to the difficulty of a lad who has been working hard all day giving up his evenings to study—a difficulty which is increased now that there are picture-palaces, &c., within a stone's throw.

Much of the inadequacy of reinforced concrete design to-day is attributable to the inexperience and want of proper technical training among structural engineering draughtsmen. The dearth of competent assistants is especially to be deplored because of the frequent harm that results by the making of mistakes by the incompetent draughtsmen who are employed for the want of good ones. The progress of reinforced concrete as a method of construction is hampered thereby, for when persons notice so many mistakes being made they are often chary of employing it. Naturally specialist engineers are desirous of increasing their output to the utmost, and they feel forced to seek help from those who are the only available material, and in the rush of work designs turned out by these assistants are too frequently inadequately checked before execution.

In concluding this address attention must again finally be called to the great necessity of seeing that the cement used on the works is of excellent quality throughout, that it is carefully stored so as to prevent any loss of strength by over aeration. Only by this means can good concrete be guaranteed; that is, of course, assuming that all the other ingredients are in their turn good and clean and that the workmanship is good. But all the care in the world cannot make good concrete unless the cement is of excellent quality. It is a most difficult matter to instil into the minds of contractors and others the very serious loss in the crushing strength of concrete when over-aerated cement is used. All that can be done is to repeat, "Watch the cement," and if all your tests come out right there is no doubt of the result being good.

ENGLISH NEO-CLASSIC ARCHITECTS.—II.

THE third of the course of ten lectures now being delivered on Thursday evenings at London University by Mr. A. E. Richardson, F.R.I.B.A., dealt with

TENDENCIES OF THE PALLADIAN SCHOOL TOWARDS ROMAN MODELS.

LECTURE III.

When considering the work of the English architects of the eighteenth century it must be understood that that period, said Mr. Richardson, really took forty years from the seventeenth and gave twenty to the nineteenth century.

Practically the whole of the work of the Wren school was accomplished at the termination of the reign of Queen Anne; in fact, before the advent of George I. the influence of the great architect was already overshadowed by the machinations of others.

In passing from the study of what must be considered the second phase of the neo-Classic movement to that which became the vogue during the early years of George I., we become conscious of a marked divergence. Wren's actual followers were few. But it is imperative to remember that the academic diction of the ensuing phase owes its existence to the enormous activity of Wren, and this in spite of the temporary reaction in taste which for a time prompted a return to the style of Inigo Jones.

We have to study the architecture of Wren's time from an impartial standpoint; we must not be blind to its defects. Grand effects of composition governed its evolution, at the sacrifice of pure detail; the fault rests with the period, and not with the man. Having acquired a taste for Classic art, the English showed their determination to probe its hidden mysteries, and the succeeding years form one vast sequence of research.

Among Wren's contemporaries Vanbrugh stands out as the most conspicuous figure, and the assertive individuality of his manner marks a curious divergence from Wren's teachings. The erection of Blenheim Palace gave Vanbrugh the great opportunity of his life; his daring originality evolved a plan dissimilar to anything then in existence, and one which, despite its inconvenient arrangement of domestic offices, is essentially monumental. The study of academic planning apparently obscured his vision regarding a reticent silhouette for elevations; for the latter he approached his subject in the spirit of a painter of stage scenery, and gave preference to a gigantic vertical element in his compositions which terminated in a series of meaningless and unnecessary features. Moreover, he introduced the architectural order on such a gigantic scale as to overpower the finer qualities of his designs.

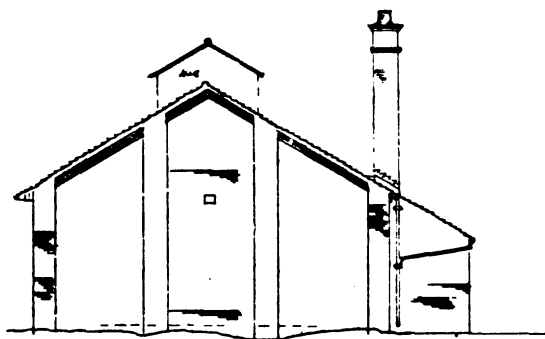
Nicholas Hawksmoor marked a further divergence from Wren's manner. At the age of eighteen he became domestic clerk to Sir Christopher, practically a pupil, and was afterwards employed by him as clerk of works at Winchester, Chelsea, Greenwich, and Kensington. Under Vanbrugh he acted as assistant surveyor during the erection of Castle Howard and Blenheim Palace. Hawksmoor attempted a reconciliation of both his masters' systems for his own work. Christ Church, Spitalfields, is one of his best plan examples; but his finest work is St. George's, Bloomsbury, which (apart from its successful composition) has in its steeple an early example of a conspicuously skilful adaptation of an antique motif.

In the meantime the tradition was spreading in various directions: translations of Serlio, Vignola, Palladio, and Scamozzi became more readily accessible to architects, masons and workmen. The general desire was in the direction of even greater originality than that displayed by Wren. The whole trend of events, however, was gradually shaping

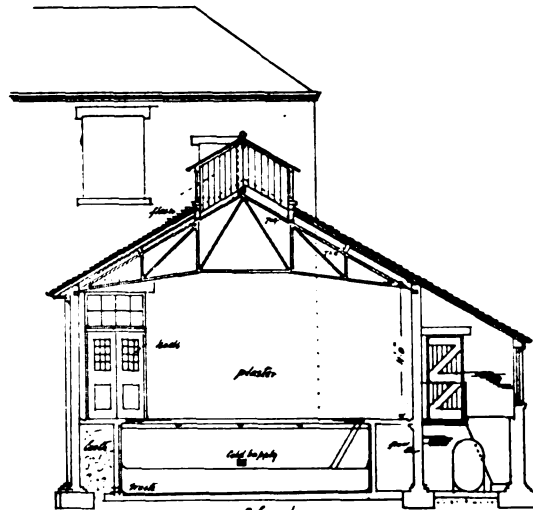
(Continued on page 485.)

ORPHAN ASYLUM GIRLS SWIMMING BATH

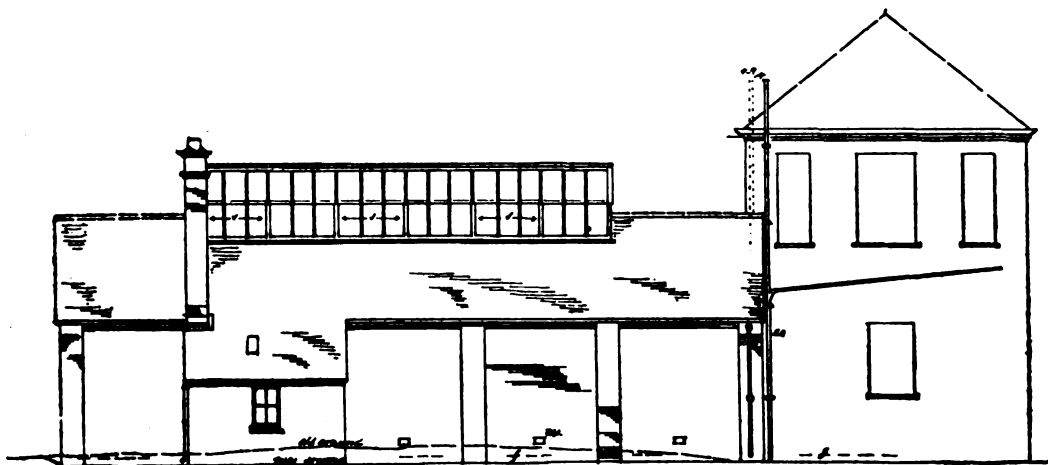
10 5 0 10 20 30 40 50 60 70 Feet



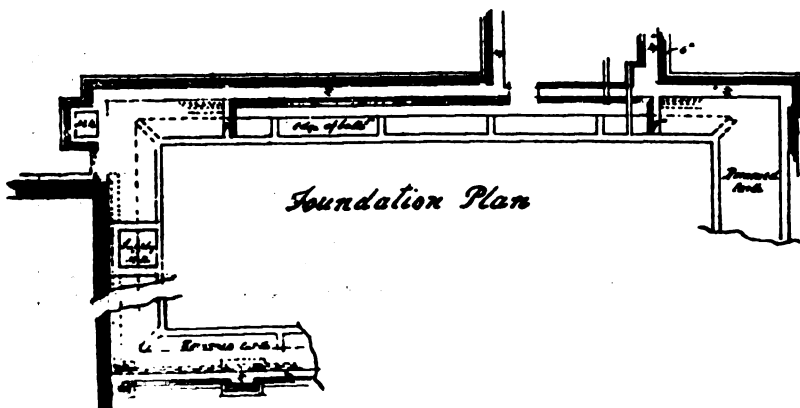
End Elevation



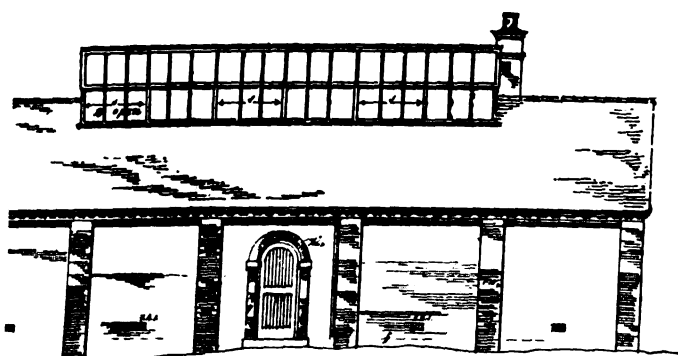
Cross Section



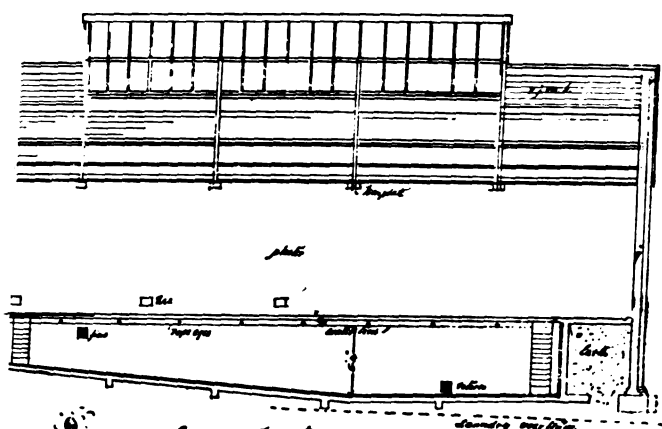
North Elevation



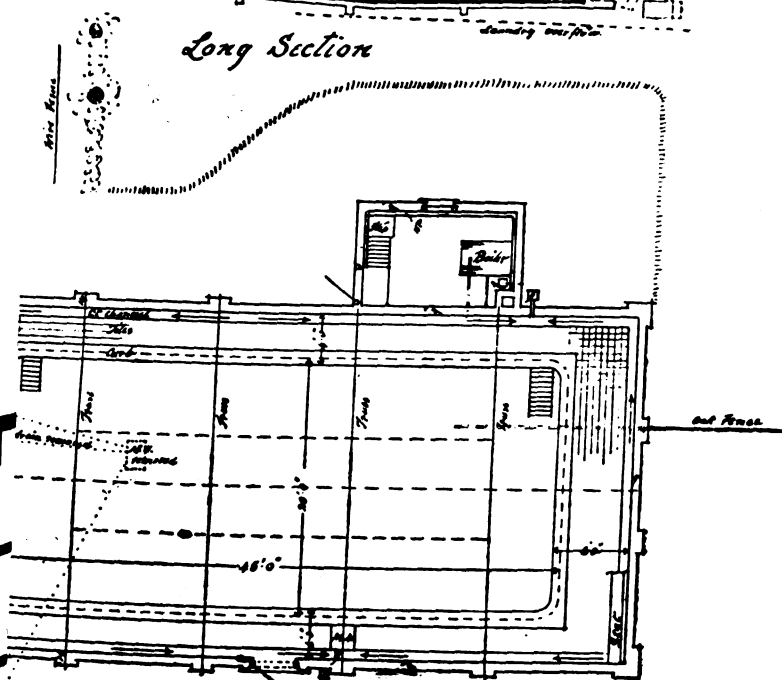
Foundation Plan



South Elevation



Long Section



Plan.

LONDON ORPHAN ASYLUM.—SWIMMING-BATH FOR GIRLS' SCHOOL.

THIS institution at Watford has been founded just one hundred years, and over 7,000 children have passed through its hands. At present there are about 500 children at the asylum. In the construction of this small bath very rigid economy had to be observed, and the greatest water area obtained for the limited funds available. The pool measures 45 ft. by 20 ft., and is constructed of reinforced concrete 4 in. thick, with buttresses at intervals, and finished with a rendering of Portland cement made waterproof by Medina cement. The surface, including the bath nosing, being finished in white Portland cement trowelled smooth, tiles or glazed bricks were thus made unnecessary. The water depth as finally arranged (only juniors use the bath) is 3 ft. 3 in. to 4 ft. 10 in., the deepest place being some feet from the end.

To economise manholes, a standing 6-in. iron waste, to take the overflow from 7 ft. run of scum trough formed in the concrete side was contrived beyond the penstock waste-valve; but in this necessarily dry manhole some of the roof water was also similarly disposed of, a 6-in. syphon cutting off the waste from the drain beyond.

Below the bath gangways, which are tiled, and are 4 ft. to 6 ft. wide, are passage-ways along one side and one end, the rest being solid earth. The cold main supply enters from a 3-in. main at the shallow end, and the water is heated by direct circulation through a Strehl boiler below the water-level, the flow pipe terminating in a grating near the water surface in the side of the bath at the shallow end, and the return being connected to a grating at the bottom in the deepest part. This method of heating is undoubtedly the most economical and suitable for a small bath.

A strong manilla rope, running through fixed galvanised eyes, takes the place of a handrail round the bath, and in lieu of dressing-boxes iron rods, suspended from the wall at one end and supporting dividing curtains, are employed.

The bath building is of stock bricks, with red-brick piers and dressings, and the roof slated and lined with match-boarding. It is attached to existing buildings at one end, whence the main access is obtained.

The contractors for the builders' works were Messrs. J. Darvill & Son, of Watford; for the ferro-concrete bath Messrs. Cubitt & Co.; and for the heating plant Messrs. Rosser & Russell. The whole of the building, including the bath, heating, and drainage, was completed at a cost of slightly less than £1,000.

(Continued from page 483.)

towards the formation of an academic school, one which observed Palladian principles and at the same time held the remains of Roman architecture to be the true standard of taste.

From the year 1700 it became a settled conviction that the fashion of the "Grand Tour" provided the necessary finish to the refined training of a gentleman. Purchases of pictures and antiquities were continually made, the ruins of ancient buildings were examined and measured, all with a view of creating a spirit of emulation among those English artists who were unable to travel. If the age of Wren represents a period during which the erection of public and ecclesiastical structures almost wholly occupied attention, the succeeding period must be known as the age of private palace building. Among the travellers who visited Italy at the beginning of the century were Sir Andrew Fontaine, James Gibbs, and William Kent. Foremost among the amateurs, who really pursued a study of architecture for its own sake, was the third Earl of Burlington, who first visited Rome in 1716. Burlington in his assumed position of arbiter of taste probably selected certain Palladian motifs for his architects to work upon, and with this his actual direction in the design ceased. His real desires were in the direction of ancient Roman architecture. By 1735 the movement among the builders of mansions in favour of blending Palladian motifs with correct Roman detail was assured. Indeed, the first half of the eighteenth century, chronologically considered, provides one long account of the gradual return to the architecture of Old Rome.

In a critical study of this period an all-important fact must be constantly kept in mind; that is, the gradual formation of an academic standard by which the exponents gauged

"PRIMOLINE"

The Ideal Covering for Ceilings & Walls.

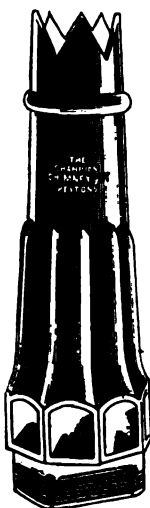
Avoid Imitations which give you trouble and cost more, and insist on "PRIMOLINE."

It is sufficient guarantee of the genuineness of "Primoline" to know that it is manufactured by Mr. W. L. GREEN, who first brought out the Gelatinous Whites and introduced them to the trade in 1905.

Write for Prices and Samples to

THE PRIMOLINE WHITE CO.
Phone 1173 Ealing. THE HAM, BRENTFORD, W.

SOLD BY ALL BUILDERS' MERCHANTS.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

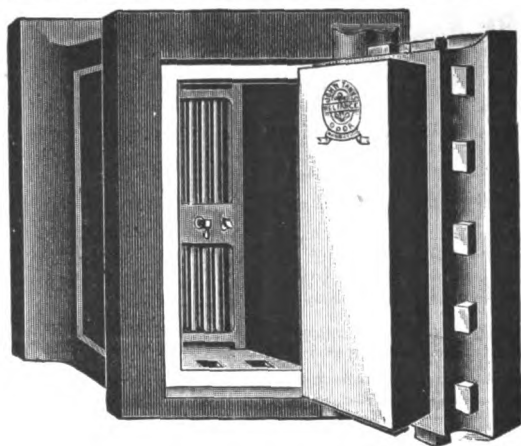
For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

ESTABLISHED 1795
FOR SECURITY AND VALUE
ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS
THE GREATEST SECURITY
FOR ANY GIVEN EXPENDITURE, BACKED UP BY
THE HIGHEST RECORD—
118 Years without a single failure against
either FIRE or BURGLARS.

Catalogues and Estimates from **JOHN TANN, Ltd.**
117 NEWGATE ST., LONDON.

The Electric Light Insurance & Maintenance Co. LTD.

**ELECTRIC LIGHT & POWER
ENGINEERS AND EXPERTS,**
1 & 2 Rupert Court, London, W.

Speciality, High-Class Installations in Town and Country.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

21, 1913.

VALUE

BY

I'S
OMS

UP BY

ainst

Ltd.

ON.

0.

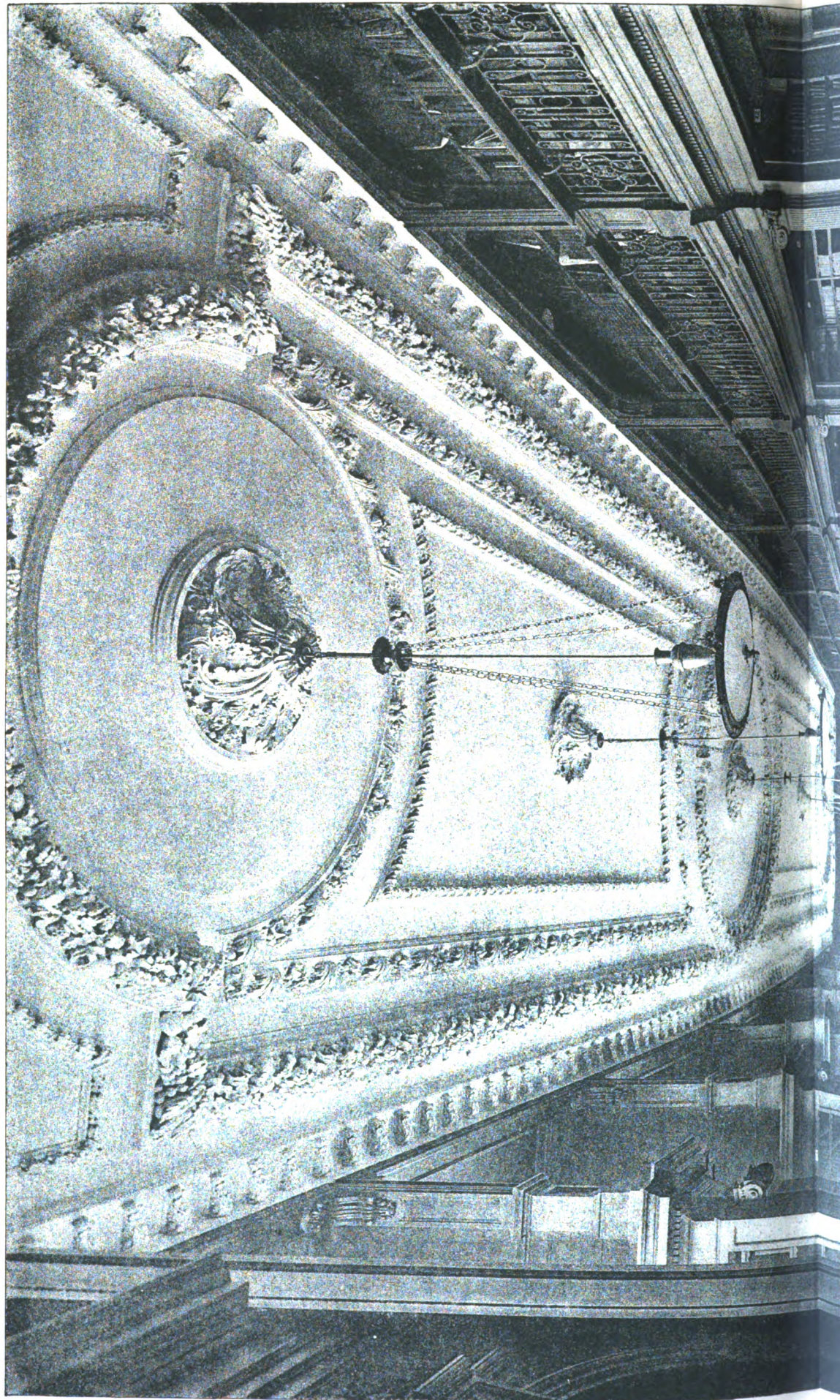
2.

-

-

-

The Architect, Nov. 21st 1913.

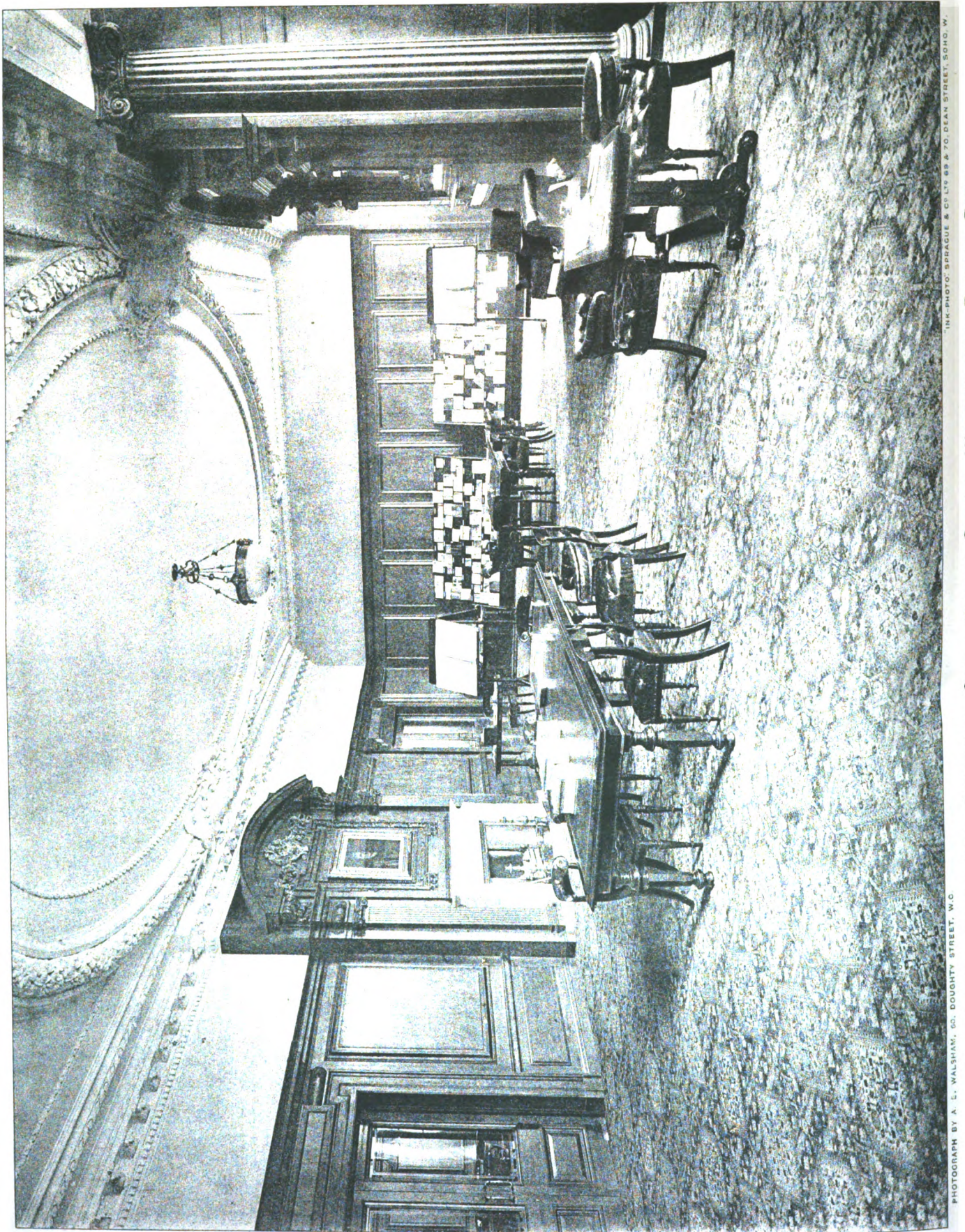




PHOTOGRAPH BY A. E. WALSHAM, 63, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W

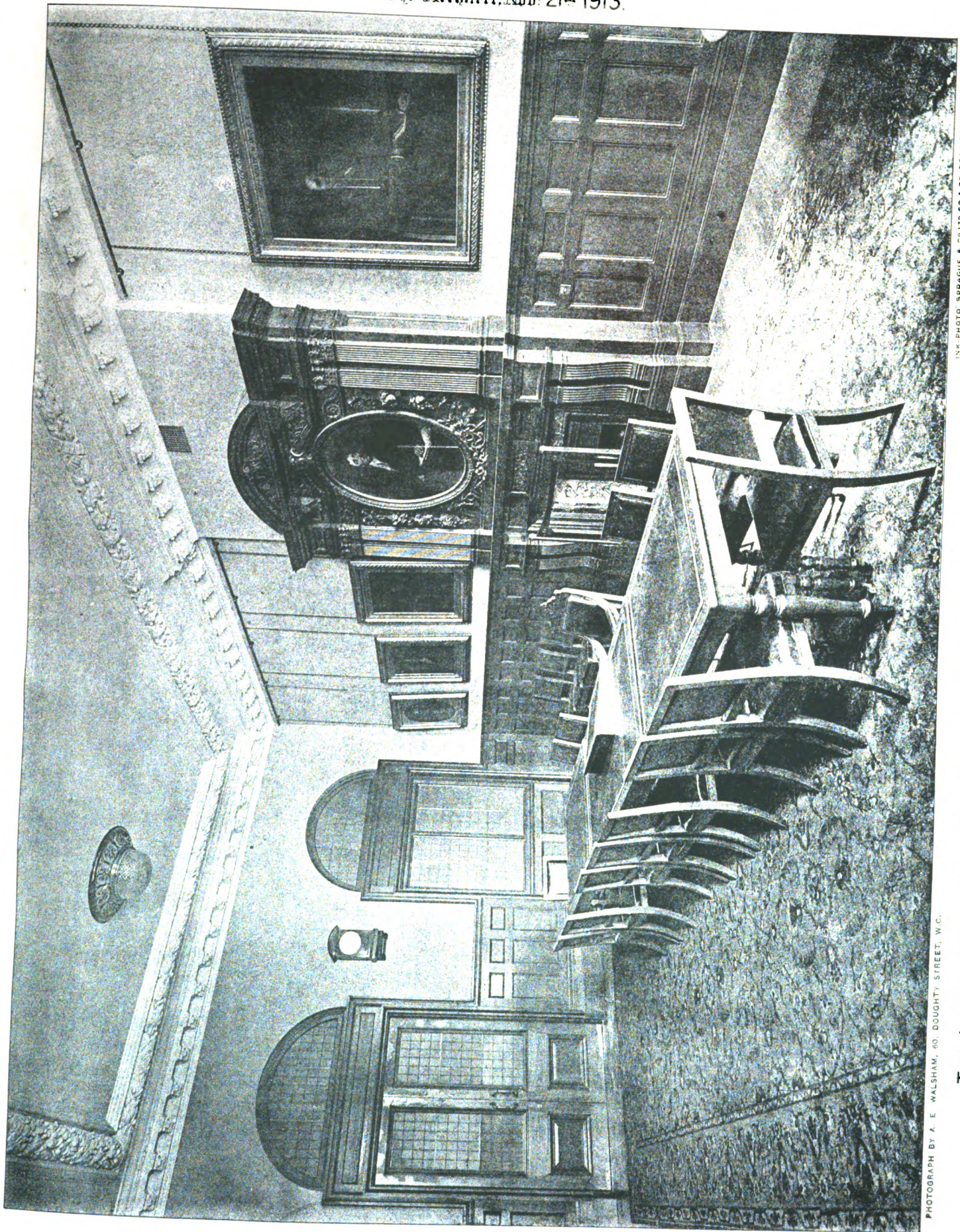
THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—LIBRARY.
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect



INK-PHOTO: SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER—READING ROOM.
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.

PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

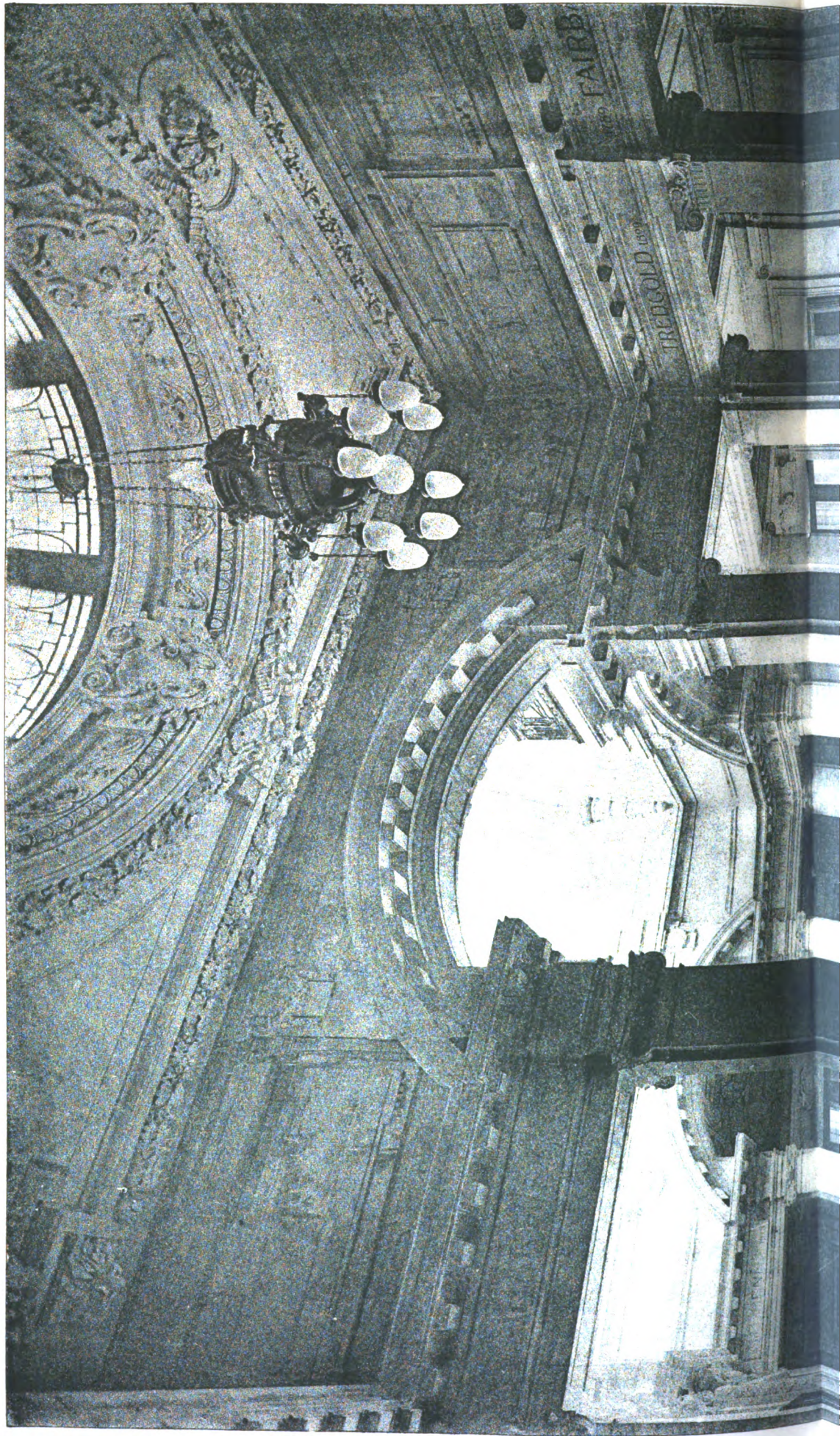


THE PHOTO SPRAGUE & CO LTD 69 & 70 DEAN STREET SOHO, W.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—COMMITTEE ROOM
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect

PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

The Architect, Nov. 21st 1913.



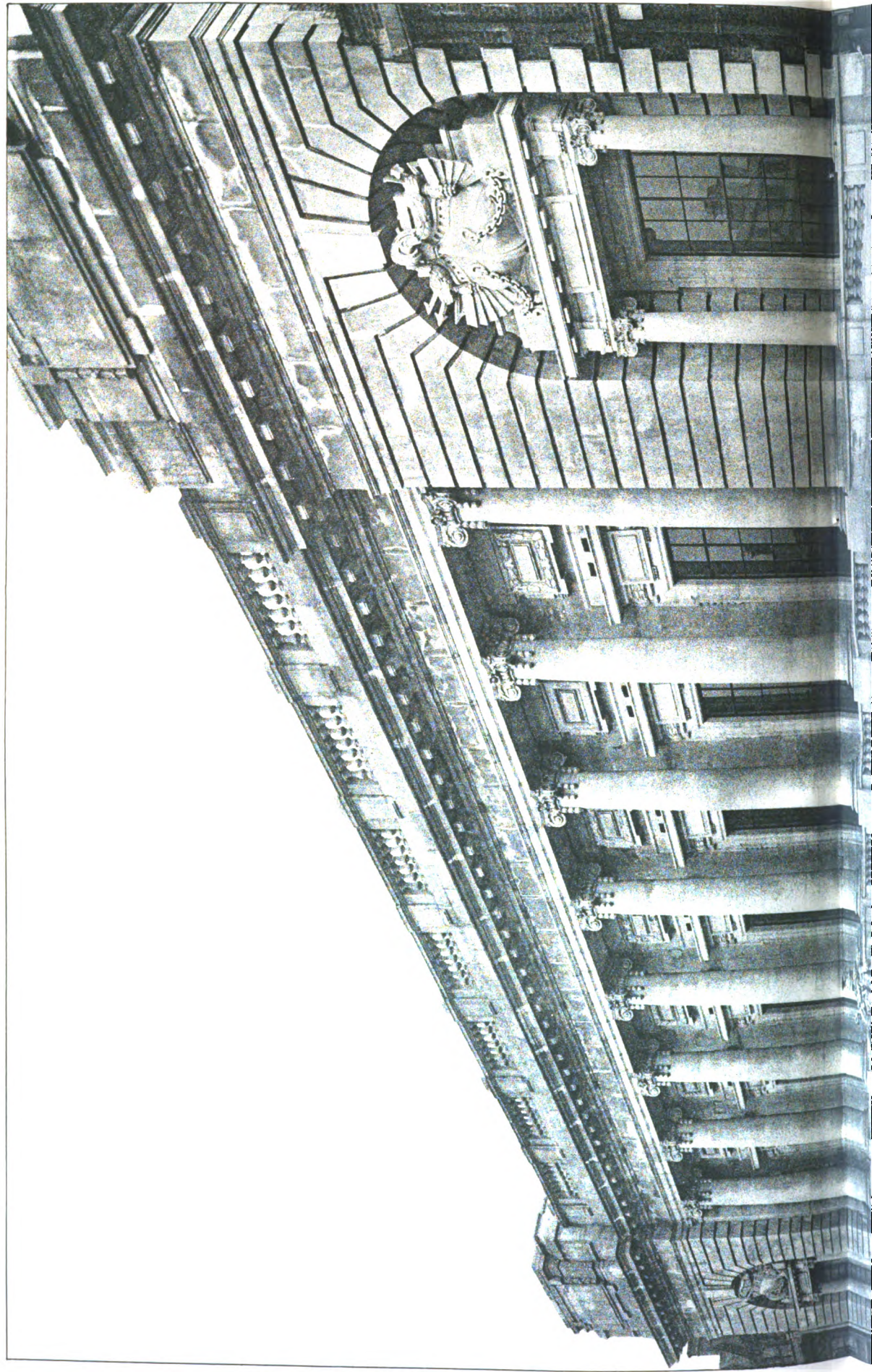


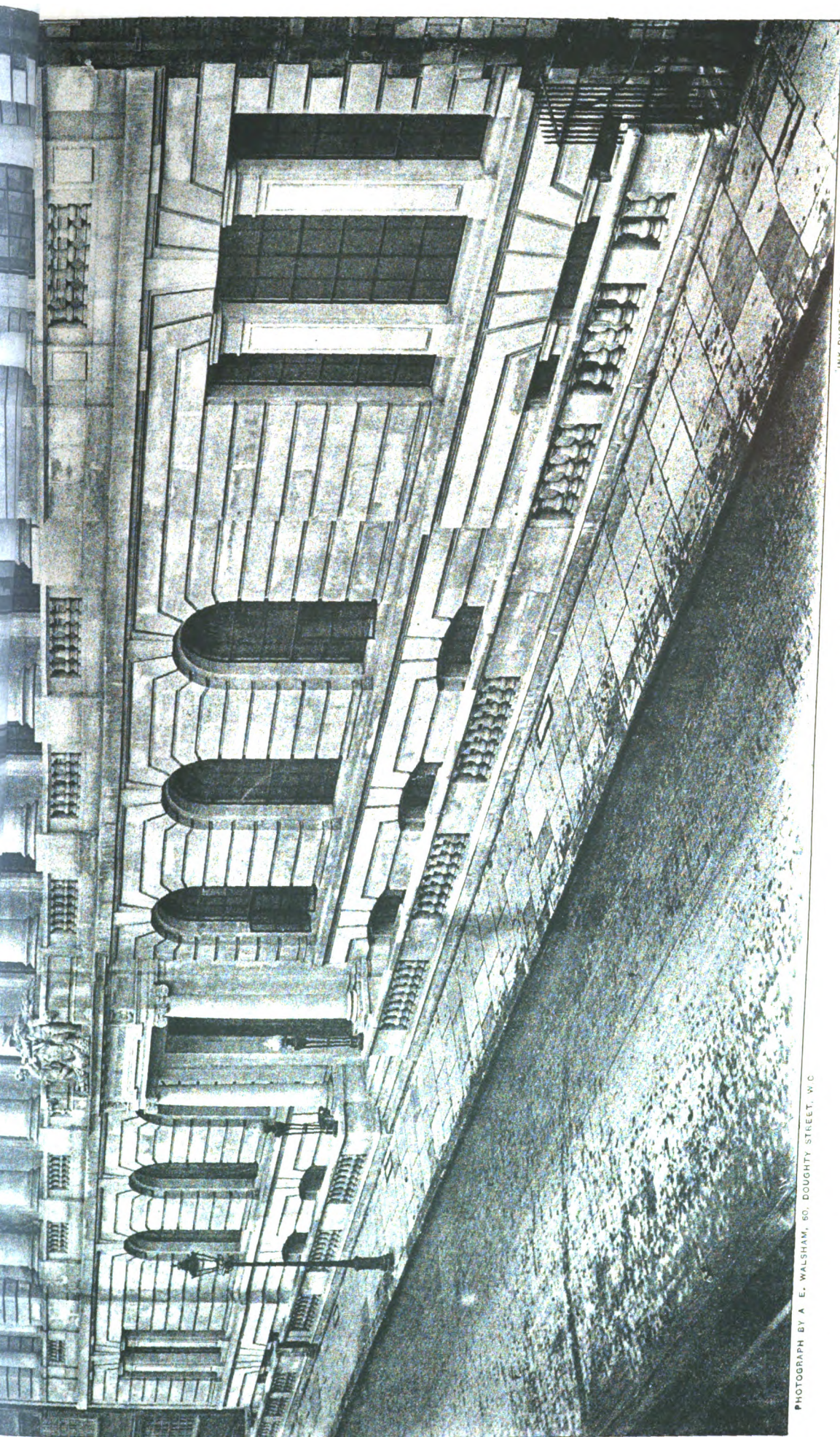
PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—STAIRCASE AND LANDING.
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect

Öhrn Architect, Nov. 21st 1913.





PHOTOGRAPH BY A. E. WALSHAM, 80, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.

the value and merit of their respective productions. The free and naturalistic ornamentation associated with the work of Wren gives place to more reticent architectural detail, the unwieldy keystone and stone block motif adopted by the church builders of Queen Anne's time gradually disappears. Many imperfections, however, are still discernible, such as broken and attenuated pediments, redundant sculptural features, &c. But the greatest advance is apparent in the improved system of simplified architectural composition. The work of this period has been described as being cold and colourless, too correct in proportion and pedantic in character. Such remarks can only be accounted for by a superficial study of the buildings. No allowance is made for the advance in technique, in the knowledge of the antique, or the greater polish of the age. The architecture was classical in its tone, its composition was borrowed from Italy, but the respect for order and sound arrangement was guided and tempered by an unequalled surety of taste.

LECTURE IV.

THE ROMAN PALLADIAN SCHOOL.

The accession of George II. to the throne in 1727 coincides with the definite establishment of the academic school. Classicism during this reign became completely Anglicised; the efficacy of the touchstone of antiquity was proving itself. Dilettantism on the part of cultured noblemen gave place to a general movement in favour of foreign travel. The picturesque and romantic character associated with the preceding age, apparent in the buildings as in the ordinary ways of life, took on a graver mien.

Under the direction of Sir Robert Walpole the next era was begun, one of progress, consolidation, and reform. It left its beneficent mark on all branches of activity, but in none more than those of science and art. The whole period blossomed with refinement and learning; the academic school in architecture had its counterpart in literature. A curious divergence was the strange affectation for Chinese decoration, resulting in the practice of sending furniture to the East to be lacquered. A stronger and more pertinent reason can be adduced. The practice of employing the architectural orders to excess for the design of interiors led to a revolt against such methods, and the desire was advanced for some form of light architectural decoration as a foil to the comparatively coarse forms introduced by many architects. These remarks apply exclusively to the treatment of domestic interiors. For a time versions of the contemporary Louis Quinze style were used for the embellishment of ceilings and other attributes. But it was left for those opportunists, the Brothers Adam, to consummate the system in their own elegant manner.

Prominent among the architects of the early period of the Roman school was James Gibbs (1682-1754). Gibbs imitated the manner of Wren in the design of his churches, but brought to bear on the problems of the time the sound knowledge he had acquired in Italy. Like Wren, he achieved success as a composer of masses, but failed in the adaptation and selection of Classic ornament. In 1714 he carried out his first design, the church of St. Mary-le-Strand. Seven years later he designed and erected the church of St. Martin-in-the-Fields, which occupied five years and cost £32,000. One of his most notable achievements is the Radcliffe Library at Oxford, built between 1737-47.

Among the lesser men were Matthew Brettingham; John Vardy, whose reputation rests upon the dignified design of Spencer House, overlooking St. James's Park, 1753-63; Henry Flitcroft, whose largest work is the church of St. Giles-in-the-Fields; William Robinson, who between the years 1750-75 assisted Horace Walpole in realising the Gothic work at Strawberry Hill; Isaac Ware; and Robert Morris. George Dance completes the list of the coterie who practised during the formative period of the Roman phase, and who zealously carried on the vernacular tradition. By the year 1740 practically all the lesser men were following the lead of the academic school in the direction of Roman models. The first fifty years, chronologically considered, of the eighteenth century, therefore witnessed the development of antique research; the classical spirit dominated architecture: it extended to sculpture and poetry.

And, following the practice that architecture begets architecture, the mature phase of the Roman Palladian was evolved. It is so often the mistaken practice among architects of the present day to select a certain period of the tradition for exploitation. This policy can only result in a partial understanding of the real meaning of architecture; it is a method followed by every reproducer of antique furniture. Careful investigation of the eighteenth century reveals

that in no single instance does the model represent an actual copy of the antique prototype. Generally speaking, the impress of the time has faithfully left its mark on the work; whatever its antecedents, it became acclimatised to the English soil. The adverse criticism one invariably encounters concerning Classic art in England results from the pernicious practice of a cursory and superficial acquaintance with the stream of events which brought about the architectural style.

In the mature period of the Roman phase a further advance towards the paler academic tints is to be seen. This does not mean that the work of the architects who formed the second half of the school lost one scintilla of power; on the contrary, the gain in restraint and subtlety was commensurate with the overthrow of the picturesque elements, which had no hold over the imagination of the academic artists. Yet, in spite of further and more important discoveries in the realms of Classic art, the Palladian system of proportioning was continued at the same stately gait, marshalled by each succeeding group of artists. The system of academic composition was extended to embody further principles, the greater advance in taste being in the planning and decoration of buildings.

In the careers of the Woods of Bath (father and son) we have two architects practising at a remote distance from the academic centre at London, but whose work is far from provincial. The whole of Bath reflects their labours. The career of Carr of York is analogous to that of Wood of Bath, and he carried out many important mansions.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Aylesbury.—Six houses, Beaconsfield Road, for Mr. H. Bailey.

High Wycombe.—Six artisans' dwellings, Beacons Bottom.

CORNWALL.

Mawgan.—R.C. Convent (£20,000).

Penzance.—Drill Hall, Lescudjack, for the County T.F. Association.

Redruth.—Workhouse: men's infirmary (£3,000).

DERBYSHIRE.

Chapel-en-le-Frith.—Council School for 250 places.

Chinley.—Conservative and Unionist Club, Lower Lane.

Derby.—Asylum: extensions (£3,500).

Ilkeston.—Mission Church (for 200 sittings), Park Road (£1,000).

Kegworth.—Council School for 200 places.

Rousley (near).—Extension of Stanton Woodhouse, for His Grace the Duke of Rutland.

DEVON.

Boasley Cross.—Council School for sixty places.

Devonport.—Town Hall Municipal Buildings, Police Station, &c. (£10,000).

Ilfracombe.—Cookery and manual work Classrooms, Shepherd's Park.

Okehampton.—Cottage Hospital (£1,000).

Stokenham Huccombe.—Council School: New Teacher's House, Offices, &c. Mr. P. Morris, A.R.I.B.A., County architect, Richmond Road, Exeter.

DURHAM.

Boldon, Marsden, and St. Hilda Collieries.—Proposed Homes for aged miners, for the Durham Aged Miners' Homes Association.

Houghton-le-Spring.—Workhouse: two Children's Homes (accommodation for twenty-four), Stockfield Terrace. Messrs. Cowe, architects, Central Chambers, Front Street, Chester-le-Street (£900).

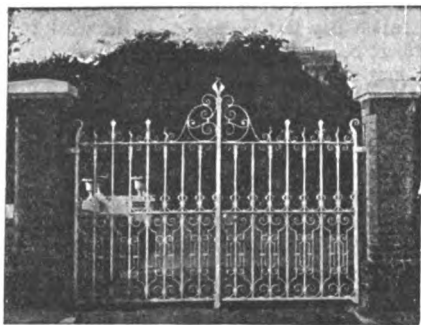
Stockton-on-Tees.—Vicarage, Thornaby-on-Tees. Mr. L. Linton, architect, N.E. Bank Chambers.

Sunderland.—Collegiate boys' School, Low Barnes Estate, for the Council Education Committee.

ESSEX.

St. Lawrence.—Public Elementary School for thirty-eight places.

Witham.—Sets of farm buildings, for the County Small Holdings Committee.



WITCHELL & CO.,

Specialists in
Wrought Iron and Art Metal Work,
55b LUDGATE HILL, LONDON, E.C.
(and Endwell Works, Brockley, S.E.)

THE... British Traders' Association.

For the Protection of the Building and Hardware Trades.

Managers: **OORFIELD & ORIPWELL,**
119 Finsbury Pavement, LONDON, E.C.;
12 Cherry Street, BIRMINGHAM.

A subscription of £1 is, per annum entitles the Member to
10 Status Reports, to the Collection of 10 Accounts in England
and Wales free of Commission, and to any registered information
on the books. Continues Reports a Speciality. Weekly
Letter Issued. Membership limited to Wholesale Firms.

STATUS INQUIRIES, DEBT RECOVERY,
VESTIGATIONS AND INSOLVENCY DEPARTMENTS

CHRISTIE PATENT STONE CO., LTD.

DRESSINGS, STAIRS, LANDINGS.

Works: Christie Rd., Stretford, Manchester.
Bournemouth Street, Hull.

RED CROSS Colourless Stone Solution

Cures DAMP and ARRESTS DECAY.

Price 6/- per gallon; same as used at the new
building at the Royal Infirmary, Glasgow, &c.

Made by the

STANDARD CHEMICAL CO., 604 Duke St.
GLASGOW.

Priest & Mullings, Ltd.

IRONWORK CONTRACTORS & CONSTRUCTIONAL ENGINEERS.

Manufacturers of Iron Fencing, Gates, Iron Doors,
Staircases, Roof Work, Stanchions, Principals, &c.

BUILDERS' IRONWORK A SPECIALITY.

Prices right. Prompt delivery.

AVONVALE IRONWORKS, Netham, BRISTOL.

London Office: Bank Chambers, Finsbury Park, N.

MARSHALL & CO.

Architectural Modellers,

Fibrous Plaster & Carton Pierre
Manufacturers,

SULGRAVE ROAD, HAMMERSMITH, LONDON, W.
Telephone No. 126 Hammersmith.

*Please make a note
in your books!!*

The Telegraphic Address of
"The Architect" is

"ARCHITONIA, LONDON,"

and Telephone Number

HOLBORN 4725.

GILBERT WOOD & CO., Ltd.,
6-11 Imperial Buildings,
Ludgate Circus, London, E.C.

The original introducers of the Hot Water
Cylindrical Tanks.



The original introducers of the Hot Water
Cylindrical Tanks.

Illustrated Sheet, showing application of our Hot Water Cylindrical Tanks, sent on request.

DURES CO

THE KING OF WATER PAINTS.

The FIRST in the Field. The FOREMOST ever since

THE SILICATE PAINT CO.

Made and sold a Water Paint in 1875.

30 Years Experience has stamped

DURES CO

as being the premier Water Paint.

SOLE MANUFACTURERS—

THE SILICATE PAINT CO.,

J. B. ORR & CO., Ltd.,

CHARLTON, LONDON, S.E.

ENGLAND—continued.**ESSEX—continued.**

Woodford Green.—Proposed Fire Station, Woodland Green.

HAMPSHIRE.

Fareham.—Parish Church: re-building of nave.

Romsey.—P.M. Church, Landford.

Totton.—Public Elementary School for 100 places.

HERTFORDSHIRE.

Tring.—Twelve cottages, Brunstrux Hill, for Rt. Hon. Lord Rothschild.

KENT.

Beckenham.—Public Elementary School, Balgovan Road (£14,600).

Bromley.—Workhouse: additions and alterations.

Margate.—Central Fire Station.

LANCASHIRE.

Blackpool.—Public baths and wash-houses (£10,000).

Oldham.—Infants' Council School, Higginshaw. Messrs.

Winder & Taylor, architects, 61 Union Street.

Widnes.—Theatre of Varieties. Mr. G. E. Tonge, architect, 371 Lord Street, Southport.

LEICESTERSHIRE.

Leicester.—Buildings for the Territorial Association (£5,000).

Melton Mowbray.—Salvation Army Hall, Pall Mall.

Shaw Lane.—Proposed Council mixed school.

LINCOLNSHIRE.

North Hykeham.—Council School for 200 places.

MIDDLESEX.

Ashford.—Bank premises for Messrs. Barclay & Co., Ltd. Mr. J. H. Tyars, architect, 10 John Street, Adelphi, London. Mr. C. F. Kearley, contractor, 11 High Street, Uxbridge.

Ealing.—Branch Library, corner of Northfield Avenue and Bramley Road. Borough surveyor.

NORTHAMPTONSHIRE.

Northampton.—Workhouse infirmary: additions to nurses' quarters. Messrs. Law & Harris, F.R.I.B.A., architects, 1 Sheep Street.

Wellingborough.—Police Station, Courts, &c.

NORTHUMBERLAND.

Blyth.—P.M. Church, Beaconsfield Street (accommodation for 450 to 500 sittings), £4,000. Mr. J. Goulding, architect. Mr. Richard Baxter, contractor, Salisbury Square, Cowpen Quay.

Haydon Bridge.—Drill Hall, for the County T.F. Association.

Morpeth.—Drill Hall and Riding School, for the local squadron of the Northumberland Hussars.

Newcastle-on-Tyne.—Drill Hall, Walker: alterations for the 5th Northumberland Fusiliers.

One hundred (or more) houses, Barrack Road, Todd's Nook Estate, for the Sutton Trustees.

Rothbury.—Drill Hall for the 7th Northumberland Fusiliers.

Seaton Delaval and West Moor.—Drill Halls for the County T.F.A.

Wooler.—Drill Hall, Dye Mill Field (£2,200). Messrs. Green & Sons, Ltd., contractors, Church Side, Warkworth.

NOTTINGHAMSHIRE.

Carlton.—Headquarters for the Army Council (£2,550).

Nottingham.—Picture Palace, High Street. Mr. G. Sadler, contractor.

The Scala Cinema Theatre and Café, Market Place. Messrs. J. Barlow & Co., contractors, Beauvale Road (£5,425).

Retford.—Headquarters for the Army Council (£3,850).

Sutton-in-Ashfield.—Post Office, Brook Street.

Worksop.—Brick magazine for the Army Council.

SOMERSET.

Chard.—Fifteen workmen's dwellings (proposed).

STAFFORDSHIRE.

Bucknall.—Infectious Diseases Hospital: extension (£7,600). Mr. E. Jones, architect, 10 Albion Street, Hackney.

SURREY.

Bagshot.—Proposed Police Station.

Godalming.—Church Room.

Hambleton.—Workhouse: proposed Children's Home (£1,900).

Weybridge.—Church, St. George's Hill Estate.

WARWICKSHIRE.

Birmingham.—Cinematograph Theatre, Washwood Heath Road, Ward End, for Mr. A. Burt.

WILTSHIRE.

Melksham (near).—Council School, Lowbourn. Messrs. Sturgess & Co. (of Andover), contractors.

WORCESTERSHIRE.

Driftwich.—Proposed Police Station.

Ten workmen's cottages (£3,100).

Kings Norton.—Cinema Theatre, Pershore Road, Cotteridge, for Mr. A. A. Shuker.

Worcester.—County Offices (£12,000). Mr. A. V. Rowe, architect.

YORKSHIRE.

Bentley.—Council Offices (£2,225).

Bridlington.—House, Lamplough's Estate. Messrs. W. S. Walker & Son, architects.

Carcroft.—Wesleyan Church.

Darfield.—Forty municipal houses.

Doncaster.—Picture Theatre, High Street.

Featherstone.—Working-class dwellings (£29,950).

Grassington.—"West View House": additions. Messrs.

Empsall & Clarkson, architects, 7 Exchange, Bradford.

Pocklington.—Headquarters for the T.F.A. Messrs.

Wellsted, Dossor & Wellsted, architects, Waterloo Chambers, Hull.

Rawmarsh.—Special instruction School, Ashwood Road (£1,100).

Redcar.—Sir Wm. Gurney's Grammar School: additions (£2,800).

Council School, Aske Road.

WALES.

Barry.—Boys' County School: restoration.

Gilfach Goch, Nantymoel, and Ogmere Vale.—Sixty houses, for the Ogmere and Garw D.C.

Llansamlet.—Parish Church: completion of tower (£1,600).

Rhos-on-Sea.—Picture Palace, Penrhyn Avenue. Mr. S. C. Foulkes, architect, Post Office Chambers, Colwyn Bay.

Swansea.—Twenty-eight workmen's cottages, Brasspit Lane.

"Summerland," Caswell: additions and alterations, for Mrs. Howell.

SCOTLAND.

Airdrie.—Grit factory, Gartlea Road: extension for Bailie McGregor (£840).

Dumbarton.—Picture House and tea-rooms, High Street. Messrs. J. C. McKellar & Gunn, architects, 45 West Nile Street, Glasgow.

Picture Theatre, College Street, for Mr. J. McBurnie (of Bellshill).

Poorhouse: reconstruction (£6,725).

Dundee.—No. 16 Victoria Road: extension, for Mr. A. Neave.

Nos. 1 and 3 Rosefield Street: additions and alterations, for Mr. J. Tares.

Premises in Larch and Urquhart Streets and Blackness Road: reconstruction for Messrs. Urquhart, Lindsay & Co., Ltd.

Property, Pitkerro Road: alterations for Mr. A. Downie.

School for physically and mentally defective children (£4,480).

Villa, Adelaide Place. Messrs. MacLaren, Sons & Soutar, architects, 10 Reform Street.

Warehouse, Neish Street: extension for Messrs. Thomson Bros., Ltd.

Glasgow.—Baths and washhouses, Calder and Kingarth Streets, for the Corporation.

Church, corner of Merrylee and Bromhall Roads, for the Merrylee Church Trustees.

Fourteen terrace-houses, Borden Road, Jordanhill. Messrs. W. Downs & Sons (of Uddingston), builders.

School, Batson Street: addition for Govan School Board.

Electric sub-station, Hobden Street, for Messrs. D. Bennie & Sons, Ltd.

Variety Theatre, New City and North Woodside Roads, for Mr. A. E. Pickard.

Glenisla.—Auchenliesh House: additions. Messrs. Falconer, architects, 27 Bank Buildings, Blairgowrie. Separate trade contractors.

Paisley.—Art Gallery.

"PETROS"

The Stone preservative that

Solidifies and Preserves Rotting & Crumbling Stone

for all time.

"PETROS" is not merely a surface wash, but gets right into the stone, and is colourless.

Samples of stone treated with "Petros" forwarded on application, along with copies of testimonials from users.

PETRIFYING LIQUOR FOR DAMP WALLS.

"IRONSTONE" CEMENT (*spécialité*)

Mastic Cement, in all qualities and colours.

THE WARO "PETROS" STONE PRESERVATIVE CO.,

4a Carpenter Street, Charles Street,
MANCHESTER.

MOTOR TRACTION MEANS — MORE — TRADE.

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

(1) The L.G.O.Co.'s "B" TYPE.

2,500 of these vehicles at work in London. *Verb. sap.*

(2) The DAIMLER 3-TONNER.

The acme of refinement in Motor construction.

(3) The THORNYCROFT 30-cwt. CHASSIS.

(2 tons gross). It's THORNYCROFT—that's good enough.

(4) The HURTU LIGHTNING 15-CWT.

THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.

THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curcarsold, Sewest, London." Telephone: Regent 2943.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*



DESIGNS TO ARCHITECTS' DRAWINGS AND
SPECIFICATIONS FORM A SPECIAL FEATURE.

ELECTRIC LIGHT FITTINGS

Of Every Description.

**FRENCH & ENGLISH
PERIOD FITTINGS.**

Very Large Selection of English
Fittings; also for Indirect and
Semi-Indirect Lighting.

Just published, New Catalogue, 296 pages, post free upon application.

FALK STADELMANN & CO., LTD.,
83-87 FARRINGDON ROAD, LONDON.

**And at GLASGOW
& MANCHESTER.**

PATENT SPECIFICATIONS PUBLISHED NOVEMBER 13, 1913.

Selected by James D. Roots, M.I. Mech.E., Thanet House Temple Bar, London.

2,537. Jan. 31, 1913.—A. R. Groome, architect and surveyor, 2 Tower Villas, Tower Road, Hereford. Draught, dust and weather excluders for doors, windows and the like.

4,318. Feb. 20, 1913.—Peter Fyfe, 23 Montrose Street, Glasgow. Discharge fittings of water-closet basins.

5,228. March 1, 1913.—Amandus Luders, 28 Grosse Bleichen, Hamburg. Pendants for electric lamps.

7,139. March 25, 1913.—E. H. Strange, M.Sc., 7 Staple Inn, Holborn, E.C., and H. E. Coley, 50 City Road, E.C. Manufacture of white lead.

10,422. May 3, 1913.—J. M. Doughty, 214-222 St. John Street, Clerkenwell, E.C. Counterweights for pendant electric-light fittings.

10,445. May 3, 1913.—Dated under International Convention May 14, 1912. Edgard Frankignoul, 196 rue Pretry, Liege. Constructing foundation walls and the like by means of concrete sheet piles.

11,268. May 14, 1913.—J. D. Willocq, D. Willocq, F. J. H. Regnault, and A. J. Fucellier, 25 Passage Lubail, Paris. Generating acetylene gas.

11,349. May 15, 1913.—C. E. P. Gabriel, 4 and 5 A.B. Row, Birmingham. Locks for sliding doors, shutters, gates, and the like.

2,328. Jan. 29, 1913.—W. B. Heap, "Melrose," Stratford Road, Hall Green, Birmingham. Walls, partitions, and the like.

17,823. Aug. 5, 1913.—Thos. Robinson, 9 Highfield Terrace, Low Bentham, York. Flushing apparatus.

No. 17,959 of 1912, dated Feb. 28, 1913.—M. S. H. Montague, Farm 134, and G. R. Chesnaye, Ivanhoe Farm, Kyambu, British East Africa. Renewable sanitary seat-covers for water and other closets.

23,461 of 1912, dated April 14, 1913.—Samuel Hayes, 37 Jocelyn Road, Richmond. Machines for moulding from cement and other plastic materials, artificial slates, tiles, sheets, slabs, or the like for roofing and other purposes.

23,626. Oct. 16, 1912.—Carlo Baese, 17 Via Cittadella, Florence. Process for reproducing the plastic forms of an object by utilising the differences between corresponding images obtained from different points.

23,725. Oct. 17, 1912.—K. A. Mankau, 7 Mytninskara, St. Petersburg. Process of manufacture of bricks and other refractory products having spinel as a binding material.

23,728. Oct. 17, 1912.—Ludwig Grote, 177 Mount Pleasant Road, Tottenham. Process for manufacturing a binding medium for the purpose of making plastic material for moulding or shaping into various articles or into flat or other forms.

24,579. Oct. 28, 1912.—R. W. Butterfield, George Street, Chorley, Lancs. Window ventilator and blind support.

27,366. Nov. 28, 1912.—Gabriel Andrew, architect, Lochlea, Kay Park Crescent, Kilmarnock. Indicators for tenements, &c.

27,576. Nov. 30, 1912.—G. F. Butler, Lyndhurst, Hydes Road, Wednesbury, Staffs. Method of attaching lead or other metallic cap or covering to glazing bars, ridges, and the like for the purpose of forming water-tight joints; and

27,577. Nov. 30, 1912.—Means for preventing glass from slipping in relation to glazing bars and for preventing roofing sheets from slipping in relation to their supports.

28,050. Dec. 5, 1912.—James Cooper, 48 Cornhill. Window hoppers.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Franklin Memorial Tablet.

SIR,—In the year 1875 a tablet was set up by the Royal Society of Arts on No. 7 Craven Street to commemorate the residence of Franklin in London. There is no doubt that during the various visits which Franklin paid to London between the years 1757 and 1775 he always stayed with Mrs. Margaret Stevenson at No. 7 Craven Street, and until lately nobody ever doubted that Mrs. Steven-

son's house was identical with the present No. 7 on the west side of the street.

Sir Laurence Gomme, the clerk of the London County Council, in the course of some recent investigations into the history of London houses, found that Margaret Stephenson (the name is so spelt) was given in the Westminster rate-books as a tenant of a house on the east side, two doors from Craven Court (now Craven Passage), from the years 1761 to 1771, which house is now numbered 36.

To set out in detail all the evidence which seems to render it certain that the house now numbered 36 was in Franklin's time numbered 7 would occupy an undue amount of space; but those who are interested in the matter will find it set out at length in the Journal of the Royal Society of Arts for the present week. It may be sufficient to say that it has been shown to the satisfaction of the Council of the Society that although the present numbering of Craven Street has been in force since the year 1800, there were two earlier systems of numbering, and that it may be taken as proved that the house which for more than a hundred years has been regarded as that in which Franklin lodged is certainly not the one in which he did live, and that the true house is really No. 36.

The Council of the Society consider it right that the fact should be made known, and they regret that the Society should have been the means of giving currency to an erroneous belief, though they think that the mistake made in 1875 was quite an excusable one, considering the information available at that time—information which has only now been proved by Sir Laurence Gomme's investigations to be inaccurate.—Yours faithfully,

H. T. Wood, Secretary.

Royal Society of Arts, John Street, Adelphi, London, W.C.: November 18, 1913.

Pershore Abbey Church, Worcestershire.

SIR,—May I, as Chairman of the County Committee empowered to raise funds for the above, ask to be allowed to make known its needs?

Pershore Abbey was one of a great group of Benedictine houses which, until the Dissolution of monasteries in 1539 A.D., lay in the lower part of the Severn and Avon valleys. When the monastery was dissolved the Norman nave of its grand church went to ruin. In the seventeenth century the north transept fell, and was not replaced.

What remains of the abbey church is of singular interest, and presents some features almost or quite unique among English churches. The south transept and the lofty arches of the central tower are early Norman, believed to date from 1080 to 1100 A.D. The eastern portion of the church, rebuilt early in the thirteenth century, shows a very beautiful presbytery, with aisles and eastern transepts, and is remarkable for its grace and for the carving of its foliated capitals. The stone vaulting of the presbytery and the lantern tower are perfect specimens of Late Decorated work (c. 1330 A.D.), the former being enriched by forty-one bosses of exquisite carving.

The south transept and tower were both found to be in peril last year. The work of securing them is nearly complete. £2,000 was held to be necessary for this work, and local effort has succeeded in raising, both within and without the parish of Pershore, about £1,540.

In July last a careful examination was made of the decorated vaulting of the presbytery, and very serious danger was disclosed. Owing to decay of the great oak tie-beams which support the outer roof, these have slipped from the wallplates, and have brought so great a pressure upon the stone vault that it has cracked badly, and the walls have bulged outwards. It is estimated that the repairs of this latter mischief will need a further sum of £3,000.

The church has been closed for worship since the beginning of last July. The work of repair has begun, and is under the direction of Mr. Harold Brakspear, F.S.A. A county meeting held in Worcester on September 6 appointed the committee of which I am Chairman, and Worcestershire is already responding to its appeal.

But there must be many outside our own locality who value our few remaining abbey churches as among the treasures of the nation; and if the work at Pershore Abbey is to be carried out successfully we must ask for widespread support. Contributions for the Pershore Abbey Reparation Fund may be sent to the Vicar of Pershore, Rev. F. R. Lawson; to the Honorary Secretary of the County Committee, Mr. R. J. Oliver, Shire Hall, Worcester; or to the Capital and Counties Bank, Worcester. Further information will gladly be supplied by the Vicar of Pershore.

COVENTRY.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,

and
Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

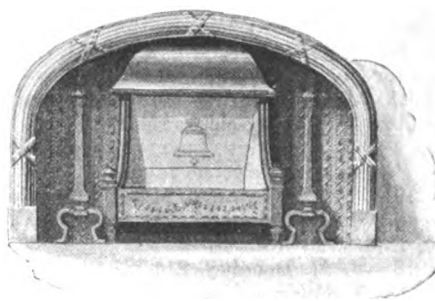
GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

**GOLD
MEDAL**

**"BELL" DOG
GRATES**



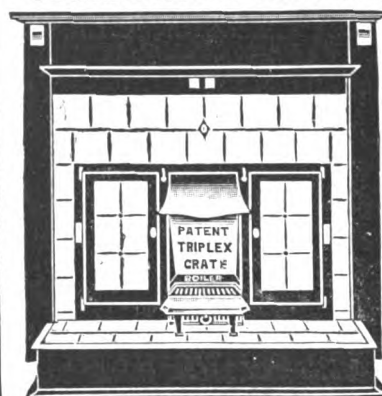
are in use in all parts of the world, and are giving absolute satisfaction everywhere; are sold under a guarantee that if they do not give perfect satisfaction to the user we will take them back, and refund the full amount paid.

Send for Lists and Testimonials.

**They will cure
Smoky
Chimneys.**

**BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.
And Northampton.**

**THE "TRIPLEX" PATENT
Combination SITTING ROOM GRATE**



**ONE FIRE does the work
of the household.**

You can cook in the ovens with the greatest ease. The bath water is heated very quickly, giving 2 hot baths per hour. The tiled front gives a smart appearance. No black-leading required. Entire absence of dust or dirt from the fire.

Complete Specification sent on application.

HORRELL & BOWMAN

Patentees & Manufacturers,
508-510 Moseley Road,
BIRMINGHAM.

Ben Henry Johnson & Sons

MODELLERS and PLASTERERS

ARTISTIC FIBROUS PLASTER WORKERS

SPECIALISTS IN FRENCH STUC WORK

Mouldings in Wood, Compo & Enriched Plaster

A FEW RECENT IMPORTANT CONTRACTS:

NEW ADELPHI HOTEL, Liverpool

(First and Second Contracts)

NEW LIVER CHIEF OFFICES - - - Liverpool

WHITELEY'S NEW PREMISES - Westbourne Grove

CARLTON HOTEL (after Fire)

VICKERS HOUSE - - - Broadway, London

69 VICTORIA STREET, LONDON, S.W.

And Primrose Hill, Fontenoy St., LIVERPOOL.

Wires:

"JONSONIPLA. LONDON."

"HENJONIN, LIVERPOOL."

STUDIOS AND WORKSHOPS:

PARKHILL RD., HAMPSTEAD

'Phones:

5419 VICTORIA.

626 & 627 CENTRAL, LIVERPOOL.
(ADELPHI) ROYAL 4434.

The Architect.

CONTENTS.

	PAGE
Protection of Ancient Buildings	493
House at Grendon, Northants (illustration)	494
Notes and Comments	494
St. Mary's Porch, Oxford (illustration)	495
Atavism in Architecture	496
London County Council	496
R.I.B.A. Examinations	496
Competition News	496
Illustrations :—	
The Institution of Civil Engineers, London	496
The Architectural Association	497
Japanese Colour-Prints at South Kensington (illustrated)	498
London Arterial Roads	499
Leeds and Yorkshire Architectural Society	502
Nottingham and Derby Architectural Society	504
Housing Co-Partnership (illustrated)	504
House Drainage Law	506
International Society of Sculptors and Painters	507
Royal Photographic Society of Great Britain	507
London Orphan Asylum Swimming Bath (with plans)	508-9
Birmingham Building Trades Employers' Association	509
City Fire Risks	511
Age of Stone Circles	511
Building Progress in the Provinces	511
British Patent Specifications	513
Correspondence	515

FORTHCOMING EVENTS.

Monday, December 1.

Royal Institute of British Architects : Business Meeting at 8 p.m.
 Royal Society of Arts : Cantor Lecture (1), "The Measurement of Stresses in Materials and Structures," by Professor E. G. Coker, D.Sc., at 8 p.m.
 Society of Engineers : Paper entitled "The Corrosion and Rusting of Iron," by Mr. Eric K. Rideal, at 7.30 p.m.

Tuesday, December 2.

London Society : Meeting at the Royal United Services Institution at 8 p.m.
 Nottingham and Derby Architectural Society : Exhibition and Criticism of Designs for "A Hospital Pavilion for Fifty-two Beds," by Mr. Arthur Marshall, A.R.I.B.A., at 8 p.m.

Wednesday, December 3.

Royal Archaeological Institute : Paper entitled "Medieval Roofs," by Mr. F. E. Howard, at 4.30 p.m.
 Institute of Sanitary Engineers : Paper entitled "Reminiscences of a Sanitary Engineer," by Mr. H. Percy Boulnois, President, at 8 p.m.

Thursday, December 4.

Architectural Association Camera, Sketch and Debate Club : Paper entitled "Some Notes on Egypt" (with sketches), by Mr. W. J. Palmer Jones, at 8 p.m.

THE PROTECTION OF ANCIENT BUILDINGS.

FOR what reason should ancient buildings be protected? The idea of protection is a quite modern one, and utterly opposed to the practice of all ages when art was a far more general subject of thought and reverence than it is to-day. The thirteenth-century artist and his employers did not hesitate to alter or destroy any work of their predecessors that stood in the way of their own schemes. Their works again were similarly treated by their successors of the fourteenth and fifteenth centuries. The men of the Renaissance ruthlessly destroyed the abominations—to them—of the barbarous Gothick. When the pendulum swung, the enthusiasts of the Gothic revival swept away the exquisite Renaissance introductions and "restored," as they believed, the mediæval achievements.

Within the last fifty years, we might say within the last forty—for we have before us the thirty-sixth annual report of the Society for the Protection of Ancient Buildings, and the existence of this Society may be taken as coeval with the epoch—there has arisen the idea of protection for ancient buildings. It is the consideration of that report that suggests the question we have put forward. The principles of the Society have been so frequently enunciated that they should by now be generally understood, and when we reduce them to their essence, we find that this is in one word—History. The alterations and substitutions that the men of successive centuries have made to the buildings they inherited are part of the history of those buildings, and as such, in the expressed view of the Society, should be protected. Even the decay that has resulted from the attacking operations of time and weather is part of the history, and so must be protected.

It must be noted that in the modern worship of History we must necessarily run counter to the claims of Art. A statue with its nose broken off has lost some of its beauty, but we must not give it a new nose, as the artist would desire, if we listen to the creed of the historian. A beautiful thing, in the course of its history, has become ugly, and ugly it must remain. Our question, therefore, is answered. We should protect ancient buildings because we value history more than beauty. There is a great deal of truth in Gladstone's dictum, that the modern Englishman admires beauty but does not hate ugliness.

In all bygone artistic and art-loving epochs the love of beauty was so complete that no one hesitated to destroy old work if he felt that he could replace it by something, to his taste, more beautiful, or if he fancied that his requirements necessitated its demolition. We do not, as a people, hate ugliness. We have no complete faith in our own artistic powers, and so for the sake of their history we are prepared to protect ancient buildings, however ugly they may be, provided only that they are ancient—or antique.

It is curious that the cult of the antique, which is largely a consequence of our exalted estimation of history, has itself led to some of the vandalism that the Society laments in its latest report, such as the removal of the panelling at Rotherwas, Hereford, at Castle House, Petersfield, Hants, and in the Globe Room of the Reindeer Inn at Banbury. The modern man of wealth has such an admiration for old panelling because of its historical flavour that he prefers it to anything more beautiful but modern, even though, under the shrewd attention of the dealer in antiques, the old be more costly; and so his preference for history rather than art leads to a depreciation of the historical value of the old work he purchases. If he were dominated by a true appreciation of the beauty of antique craftsmanship, he would realise that consonance with its environment is a vital element of its artistic value. He would know that it is absurd to suppose that the beauty of a stone Yorkshire house will not be depreciated by its removal to Surrey.

The historical aspect of ancient buildings would seem to be a less potent advocate of their protection than a true and catholic appreciation of their beauty. If our Philistine felt the beauty of old work, whether mediæval or Renaissance, and grasped the fact that harmony with its environment was an element of that beauty, he would be less ready to encourage its spoliation. If the artist were not too much conceited with his own productions and estimated aright with broad-minded outlook the productions of the past, he would not desire to substitute the modern for the ancient.

The historical point of view seems to us to lead not infrequently to the horns of a dilemma. Many a mediæval painting has been covered up by the whitewash of the churchwardens. That is the history, and if the whitewash is left the history is not obvious, nay it may be even unsuspected. If we remove the whitewash, the "history" is spoilt. From what we read in the Society's report it would appear that the Committee approved of the revelation and protection of a mediæval

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



FROM A DRAWING by "Y Ddraig Goch."

painting, even at the loss of the whitewash and its valuable history. But if the whitewash is accompanied by a painting—in whatever medium—as it often is, of the Lord's Prayer, the Ten Commandments, and the Royal Arms, what then? Which piece of historical evidence is to be protected?

The historical basis of protection clearly breaks down when the art of one generation has been overlaid by the Puritanism, the utilitarianism or the indifference of a later. The history of the former has been obscured by the history of the latter. Both cannot be protected, and we must make our decision by some other criterion. Surely the touchstone of art is superior to that of history. If the later art is beautiful let it remain and be protected by every means at our disposal. If it is not, we are surely justified, even in the view of history, if we remove it and reveal that which is older and otherwise unrecognisable. We thus serve history as well as art.

We reluctantly have come to the conclusion that the historical basis on which the original principles of the Society were founded and which to a certain degree, though not universally, was defensible, is yielding to a spirit of faddism. Thus the description of the work now being carried out on the lines of the report of the Society at St. Beuno's Church, Clynnog, Carnarvonshire, shows that the history of a chapel of the church having been used as a school, is to be obliterated and work is to be carried out which differs nothing from what in the last quarter of the nineteenth century would have been described as a "careful restoration." "The present painted deal pews are unsightly and rickety," says the report, and when funds permit the church is to be re-seated. "The original level of the floor should be restored." Original—restored. And this from the Anti-scrape Society. Verily the historical principle has broken down. Ichabod! Now for a fad. "The defective spouting of both church and chapel should be replaced with down pipes of cast sheet-lead." Cast sheet-lead! Many other instances we might quote, as, at West Horsley Church, Surrey, "under the auspices of the Society . . . the seats and fittings, which are of modern pitch pine, have been painted a dark brown colour, which is a great improvement to the appearance of the interior." The Society no longer protects. It has advanced beyond restoration to improvement. It has abandoned its original principles and betrayed its trust.

NOTES AND COMMENTS.

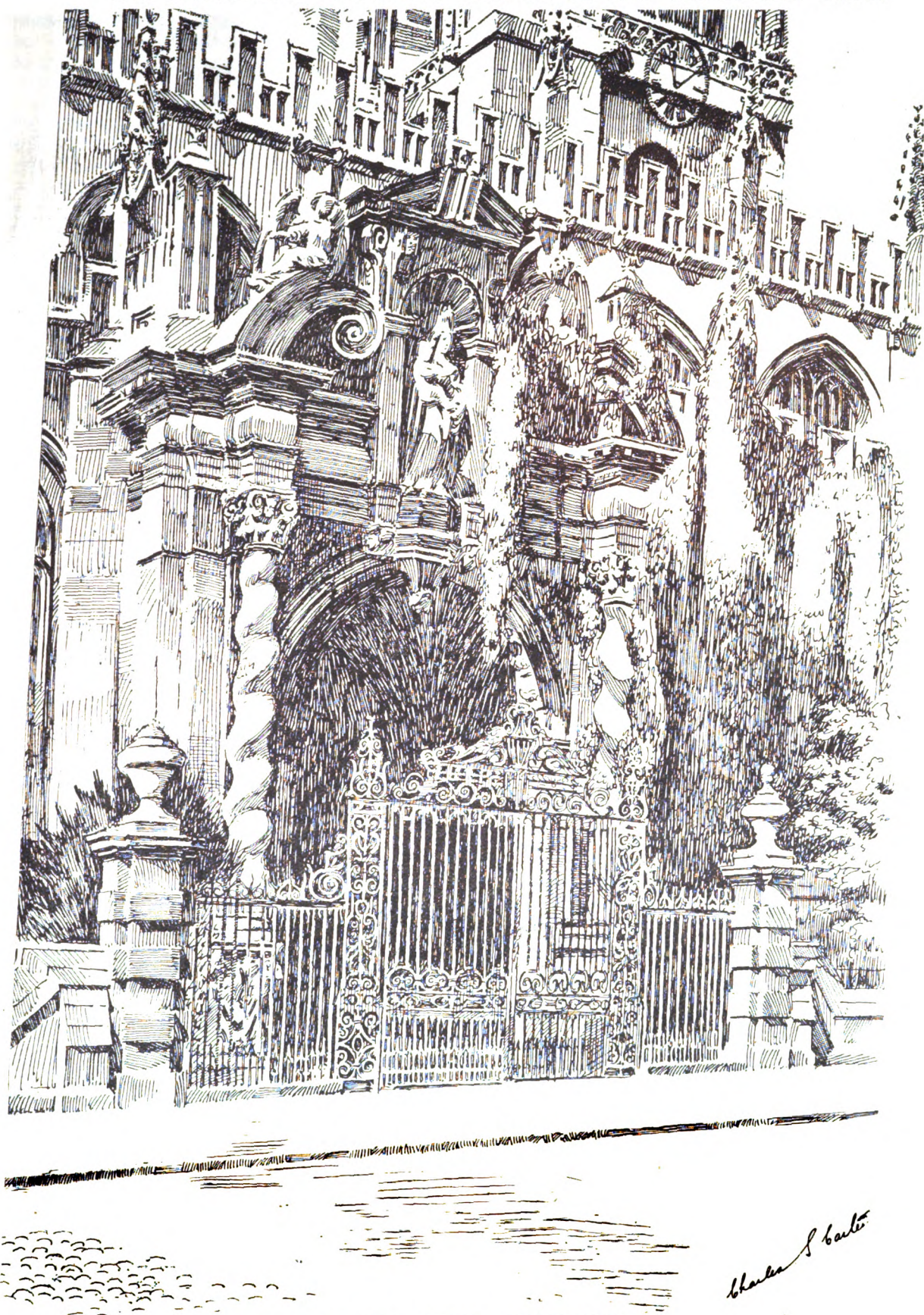
WE congratulate the staff of the London University School of Architecture on the completion of the excellent building that has been erected from the designs of Professor F. M. Simpson for their accommodation. Lecture theatre, museum, library, studios, and class-rooms and gallery for casts, as well as rooms for the staff and for storage, form a perfect equipment for a school of 100 students to work under the happiest conditions and freed from the handicap of the miserably restricted quarters by which it was formerly hampered. We confidently expect the London University School to speedily attain its proper position amongst the architectural and educational establishments of Great Britain.

It is really rather amusing to learn that the Finance Committee of the Liverpool Corporation have decided not to apply for any further renewal of the music and dancing licence of the Town Hall, because the Health Committee have not granted a certificate that the building is satisfactorily equipped in the matter of exits, all of which are required to open outwards. As the Town Hall has been licensed and used for public balls for many years past the newly awakened zeal of the Health Committee is remarkable. Is this another example of party politics?

It is absurd to talk about the statue of King Charles I. being an obstruction to traffic, and we are glad to know that Earl Beauchamp, First Commissioner of Works, has informed the President of the Royal Martyr Church Union that no proposal to remove the historic equestrian statue of King Charles I., which stands between the Strand and the Admiralty Arch, has reached him officially. Should such a proposal be made, only the strongest reasons in the public interest would force him to displace the statue from its present site.

From the report of a meeting of the Devon Education Committee it would appear that the zeal of the Committee for attaining economy by the employment of a permanent official staff of architect and assistants has resulted in such gross overwork that the building of schools is unbearably delayed. It was stated that the official architect himself had worked in one year 1,100 hours' overtime. We do not believe that true economy

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.



ST. MARY'S CHURCH, OXFORD, SOUTH PORCH.

The porch was designed by Inigo Jones in 1637. It suffered rather severely during the Civil Wars, but was restored in 1865 by Sir Gilbert Scott.

is to be obtained by the system of official architects, and such struggles as those of the Devon Education Committee to show apparent saving on paper must as here lead to a congestion of work that is obviously costly.

Every activity and every fad nowadays must have its Society, and town planning could not hope to escape. So a Town Planning Institute has now been formed with

the object of "advancing the study of town planning and civic design, promoting the artistic and scientific development of towns and cities, and securing the association of those engaged or interested in the practice of town planning."

The majority of those constituting the new Institute are architects, engineers, or surveyors practically engaged in town planning, but associate and honorary members

will be accepted consisting of persons who have taken a special interest in the subject. The first Council consists of Professor Adshead, Messrs. H. V. Lanchester, P. T. Runtun, and Raymond Unwin (architects), Messrs. J. A. Brodie, J. W. Cockrill, W. T. Lancashire, and H. E. Stilgoe (engineers), Messrs. Thomas Adams, G. L. Pepler, and W. R. Davidge (surveyors), and Messrs. J. S. Birkett and E. R. K. Abbott (associate members).

Mr. J. Burns, Sir J. Wolfe Barry, Sir Alex. R. Stenning, and Sir Aston Webb are to be asked to become vice-presidents. Among the hon. members are Lord Lytton, Lord Plymouth, Mr. J. Burns, Mr. J. W. Whitley, M.P., Mr. Ebenezer Howard, and Mr. H. Vivian. The pity of it is that there are so many Institutes and Societies that it becomes an impossibility for any architect to keep in touch with all. Hence the inevitable tendency to specialism and the temptation to narrow-minded views.

That the force of public opinion in the preservation of the beauties of the country is one that can now be relied upon for good, in resisting encroachment on the amenities, is evidenced by the fact that as a result of the protests of the Richmond Town Council at the disfigurement of the riverside walk to Kew by the erection of a concrete wall along the Old Deer Park boundary, the Office of Works have officially informed the Council that they have abandoned the proposal, "though they think the effect of the suggested wall upon the amenities of the district has been much misrepresented."

ATAVISM IN ARCHITECTURE.

THIS was the subject of an interesting lecture which was delivered by Mr. Reginald Blomfield, A.R.A., in the Birmingham and Midland Institute on Monday night. He said he was convinced that the whole explanation of any great movement in art, such as the rise of Gothic on the one hand and the neo-Classic on the other, was not to be found in technical developments. That materials and climate, social, political, and local conditions, and manners and customs had had a profound influence in the shaping of architecture one admitted at once. It was comparatively easy to trace the technical development of western architecture. Yet, however ably this was done, the final mystery remained where it was. Explanations would not tell them what was at the bottom of it all, what spirit inspired and expressed itself in Gothic on the one hand, in neo-Classic on the other. As in all art, the last word rested with temperament, and that was where the immense difficulty came in.

PROGRESS OF THE NEW LONDON COUNTY HALL.

THE dissatisfaction of Progressive members on the London County Council at what is regarded as the slow progress made in the construction of the new County Hall has apparently in no sense abated.

At this week's meeting Mr. Edward Smith asked the Chairman of the Establishment Committee (1) whether the committee would consent to submit a quarterly report on the progress of the work? (2) whether Messrs. Wall's contract was finished, and, if so, would he state the date of actual completion and the date in the contract? (3) would he state the number of men employed on the work week by week, and the amount of wages paid?

Mr. I. Salmon (Chairman of the Committee) replied that he would lay the subject matter of the first question before his committee. With regard to question No. 2, Messrs. Wall's contract was not yet completed, but they had vacated Sections A and B in such a way that the contractor for the superstructure was now proceeding with his work. There were, however, finishing items in Messrs. Wall's contract on Section B which were proceeding simultaneously. Section C of the substructure was not yet completed. He thought no useful purpose would be served by furnishing the numbers asked for in the third question, nor would the information give any adequate idea of the progress of the work. To-day there were 510 men employed, but the amount of wages paid was not within the knowledge of the Council's officers.

Mr. Smith: As a supplemental question, I do not know whether the hon. member noticed my second question. I want to know what was the date in the contract when Messrs.

Wall should have completed the work. The Chairman has not given us that date.

Mr. Salmon: I think that will be better answered, sir, when Messrs. Wall have finished their contract.

R.I.B.A. EXAMINATIONS.

THE Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students who are qualifying for the Final Examination have been approved:—

Subject XI. (a).—Design for a County Club.—Messrs. C. W. Craske, W. R. Davison, V. Dyson, H. N. Jepson, P. J. Adams, H. Andrew, W. Alison, J. S. Fyfe, A. Nisbet, J. M. Brown, J. A. Clarke, S. W. Ackroyd, G. A. Rose, H. T. Cooksey, and H. M. Whitehead.

Subject XI. (b).—Design for a Clock Tower.—Messrs. A. E. Maxwell, G. W. Callender, A. S. Burnett, N. S. Robinson, A. Silcock, T. T. Jenkins, C. C. Cheek, A. W. Robertson, junr., A. R. Shibley, G. M. Eaton, A. J. Wood, E. B. Musmann, W. E. W. Terrell, W. B. Binnie, A. F. Hooper, R. S. Wallace, R. H. Philp, F. Jenkins, F. A. Addey, A. A. Foote, A. P. Stoner, E. B. Norris, H. S. Triscott, F. H. Glazebrook, and E. R. F. Cole.

COMPETITION NEWS.

CANADA.—With reference to the competition of plans for a Masonic Temple at Toronto, the Imperial Trade correspondent at that city (Mr. F. W. Field) has now forwarded a circular containing answers to various points raised by competitors. Designs will be received, up to January 20, 1914, by Mr. W. H. Best, 181 Avenue Road, Toronto. The conditions of the competition, together with the circular above referred to, may be seen by architects in the United Kingdom at the Commercial Intelligence Branch of the Board of Trade, 73 Basinghall Street, London, E.C.

HENDON.—Mr. H. W. Wills, F.R.I.B.A., has been nominated as assessor in the proposed competition for designs for a swimming bath to be provided by the District Council at the rear of the Council offices. The conditions will shortly be issued.

OSWALDTWISTLE.—The result of the architectural competition in connection with the new Carnegie library, to be erected at a cost of not more than £3,000, has been announced as follows: First prize, Mr. F. G. Farmer, of Stalybridge and Liverpool; second prize, Mr. Leonard G. Hannaford, of Rock Ferry, Birkenhead.

ROCHDALE.—In a limited competition for the proposed laying out of a garden suburb at Summit for Mr. A. G. C. Harvey, M.P., the scheme prepared by Messrs. Butterworth & Duncan, F.R.I.B.A., of Rochdale, has been accepted, and they have been requested to prepare the designs for the houses.

WARRINGTON.—The Education Committee have adopted a recommendation that architects practising within the borough during at least the last three years be invited to send in competitive designs for the new Council School to be erected in Lovely Lane, and that the surveyor and the director of education be instructed to prepare, for submission to the committee, draft conditions for the competition. It has also been decided that a fee of £10 10s. be paid to each competing architect, the fee in the case of the successful architect being included in his commission.

ILLUSTRATIONS.

THE INSTITUTION OF CIVIL ENGINEERS.

WE this week continue our series of views from the new building of the Institution of Civil Engineers, recently completed from the design of Mr. James Miller, A.R.S.A., F.R.I.B.A., and of which a description appeared in our issue of November 21.

THE Birmingham Town Planning Committee have appointed Mr. Fountain O. C. Nash, A.M.Inst.C.E., assistant to the City Engineer of Newcastle, to the post of chief assistant to the Birmingham City Engineer in the town planning department. There were 179 applications, and the final selection was made from Mr. A. H. Bevan, of the Birmingham City Engineer's department, Mr. E. W. Tanner, of the Town Planning department, Sheffield, and Mr. Nash. The commencing salary is £300 a year.

THE ARCHITECTURAL ASSOCIATION.

The annual conversazione of the Architectural Association took place on Thursday, the 20th inst., at 18 Tufton Street, W. The guests were received on the first floor by the President, Mr. W. Curtis Green, F.R.I.B.A., and Mrs. Curtis Green. Among those present were Mr. Reginald Blomfield, A.R.A., Sir Ernest George, A.R.A., Mr. Gerald C. Horsley, Mr. Leonard Stokes, Mr. Frank L. Emanuel, Mr. Arthur Keen, Mr. G. L. Elkington, Mr. Maurice E. Webb, Mr. W. S. Purchon, Mr. H. Austen Hall, and Mr. A. G. Cross.

On the first floor there were a large number of architects' holiday sketches and photographs and sketches by members of the Camera, Sketch and Debate Club. Examples of old pewter were lent by Messrs. R. Stephen Ayling, A. F. de Navarro, and A. B. Yeates. There was also decorative work by Miss Jessie Bayes, Messrs. McDonald Gill, Arthur T. Bolton, Alfred H. Powell, and Allan F. Vigers.

Round the second floor gallery were drawings by students in the A.A. School of Architecture.

During the evening a programme of music was played by Pitman's Blue Imperial Orchestra.

A combined meeting with the Camera, Sketch and Debate Club was held on Monday last, the 24th inst. Mr. W. Curtis Green, F.R.I.B.A. (President), occupied the chair.

After some preliminary announcements Mr. F. C. Eden read the following paper, illustrated by lantern slides, on

Some Architectural Notes in Piedmont.

"I should wish in all my studies of foreign architecture to confine myself to those buildings in which there appear to me to be the germs at least of an art true and beautiful in itself and of service to us in our attempts to improve our own work. It does not appear to me that the works of the Italian Renaissance architects really contain this. If we wish for a purer school of art we must either entirely forget their works or remember them so far only as to take warning by their faults and failures. . . . I see no reason for allowing that they have succeeded in carrying out true principles either of construction or ornament to any greater extent than their imitators in England. The same falseness of construction, and heaviness, coarseness, and bad grotesqueness of ornamentation seem ever to attend their works, together with the same contempt of simplicity, repose, and delicacy which we are so accustomed to connect with them."*

The accent of architectural criticism has so entirely changed since the year 1855 when Street penned these rather superior sentiments that I suppose they must sound almost like gibberish in the ears of the present generation. It is amusing enough to look back to that dim time when Gothic was the only manner to be studied and copied, and of Gothic only one period, viz. the thirteenth century, and when even "third pointed" was banned as being naughty and debased. Probably our successors will find it no less amusing when they look back on us spluttering in Greek waters and clutching eagerly at straws thrown out to us by the Beaux-Arts.

Still, the words quoted show the feeling with which an architect's tour in Italy was planned sixty years ago—the serious, if misdirected (I do not decide the point), zeal for "a purer school of art"; the adventurous search for true principles of construction and ornamentation; and so forth. Our little tour this evening cannot, I fear, claim to be inspired by any such lofty purpose; and since time is certainly better spent when study is limited to one particular type of building or period of architecture I feel that some apology is due for the desultory, not to say unscholarly, nature of our ramble, more especially as contrasted in your minds with the paper you had hoped to hear this evening before the President was cruel enough to put me into the breach. Among the districts of Italy Piedmont is by no means eminent for performance in the arts. Even so we shall miss the more important sights, for I can only offer for your contemplation the sort of thing that any traveller in Italian by-ways may come across; in fact, just what Italy of her overflowing abundance spills, as it were, by the roadside.

We shall keep upon the lower steps of that great mountain theatre of which Piedmont forms the stage, with Turin as an approximate focus. Starting just north of Genoa where Apennines end and Alps begin, the great curve sweeps through the Ligurian and Maritime ranges, on whose summits the eye can stretch to Corsica, on the far south horizon, to

the mountains of the Engadine, in the north-east; and here we shall pay a short visit to the Val di Pesio. Saluzzo is our next stopping-place, at the foot of the Lothian Alps, of which Monte Viso is monarch—Viso, the "visible" or "seen" mountain, a magnificent, almost isolated pyramid, and I believe the only Alpine peak known by name to the ancients. A short turn follows up the Valley of Susa, through which travellers by the Mont Cenis route enter Italy, to visit the Sagra di San Michele. From here the railway takes us in a north-easterly direction, passing by the famous valleys of Lanzo, Aosta, and Gressoney, to Biella, at the foot of the Pennines, half on and half off the plain; thence to Orta, where Piedmont is left behind.

Many years ago, in the now defunct journal the *Pilot*, I came across an article by a well-known Alpine climber, telling how he had gone to the Certosa of Pesio with the intention of making it a starting-place for climbs in the Maritime Alps, but was so fascinated with the beauties of the place that he stopped for six weeks without making a single ascent.

This seemed an attractive advertisement; but on visiting the place one September we found it closed for the season—I should say that the monastic buildings are now an hotel—and so were obliged to stay at a typical Italian village inn, where we found such modest comfort that I have stayed there on more than one occasion subsequently. The nearest town is Cuneo, whence it is a drive of about twelve miles to the Certosa, the last six of which are occupied in the ascent of a lovely chestnut-grown valley, at the head of which, and at the end of a fine avenue, the buildings are placed. (Certosa is, of course, merely Italian for Carthusian monastery or Charterhouse.) The situation is enchanting, and still seems pervaded by an air of monastic serenity and recollectedness. High walls rise from a steep grassy bank over the impetuous torrent of the Pesio. A covered bridge adorned with paintings spans the river in a single arch, and is the only means of approach to the convent grounds. Opposite the bridge is the main entrance, through which one passes to the cloisters, which are of vast extent—one can walk through 800 yards of them—and still show many marble shafts and carved capitals, dating from the end of the twelfth century, when the monastery was founded.

Saluzzo is the sort of town where you come across things, not the least unexpected of which is the absolutely pure French Gothic choir of S. Giovanni. It exhibits no traces whatever of what Street called "that modification of the Pointed style which distinguishes the cities and churches of the north of Italy." It was built about the middle of the fifteenth century by Ludovico, first marquis of that name, of a fine dark-grey stone, which still retains every minutest mark of the tool on its delicate carvings. A memorial of an earlier marquis, Federigo II., is the Castle of Verzuolo, a few miles out of the town. It dates from about a century earlier than S. Giovanni, and is a great four-square pile of brick, now in private hands, and perhaps rather too trim and fresh. The town itself contains interesting works in the same material, of which the façade of a desecrated church is a fair sample. A nineteenth-century worthy, the Marchese Taffarelli d'Azeglio, was a great benefactor to the town. Besides presenting it with the Casa Cavassa, a very fine specimen of a cinquecento house, retaining much contemporary decoration very well preserved, he endowed the hospital with some lands in the parish of Lagnasco. On this property are two so-called castelli, less like castles than deserted villas, facing one another across a grassy court. Of no particular interest externally, their interiors well repay the fatigue of a rather tedious walk; here are painted wooden ceilings, chimneypieces, floors of good old glazed and patterned tiles (rather rare in Italy), and many scraps of detail suited to find a place in an architect's sketch-book.

Most people who approach Turin by the Mont Cenis route are too busily occupied in the luncheon car to take much notice of the remarkable scenery of the Valley of the Dora. If, however, one should chance to look out to the right shortly before passing the station of S. Ambrogio he will notice an abrupt mountain jutting into the valley. Wooded below, precipitous and rocky above, it is surmounted by what looks like a castle standing among ruined outworks, calculated perhaps to stimulate the faint curiosity that ruins are wont to evoke. It is not, however, a castle, but an abbey, the Sagra di San Michele.

The unattractive little town of Sant' Ambrogio, at the foot of the mountain, of some importance in the old coaching days, lay quietly asleep for a while after the railway had supplanted the Mont Cenis road, but is now feeling the low form of life which the presence of a large factory generates, stirring under the grime. S. Pietro, a village about

* Street, "Brick and Marble," Preface to.

1,000 feet above the plain, is reached by a steep and stony mule-track in something under the hour. The path then makes a traverse across the slope till the arete is reached, when it doubles back and follows the crest to the summit, from which the Sagra looms 500 feet above the village. Some time before the middle of the tenth century a recluse from Ravenna had built a small oratory on the top of Monte Pirchiriano, as it is called. At the end of the century a Frenchman, Silvester II., was Pope. He had made many voyages to and from Italy by this route, the usual one for French pilgrims. It was by his advice or command that Hugo di Montboissies, an Auvergnat noble, acquired the site and founded thereon a Benedictine monastery, the establishment of which, as the Pope was well aware, would be extremely useful to his countrymen on their journey to Rome. As the institution increased in numbers and importance the church was found insufficient, and the buildings we now see belong to a later period. The plan makes the successive demolitions and reconstructions fairly clear. Of the early oratory part still exists embedded in the walls at the far end of the crypt, as well as one wall of the primitive hermitage. Hugo's church, with its three apses, is to be traced under the floor of the present church; and part of it still stands outside the present west wall, and is known as the Old Quire (Coro Vecchio). This dates from about 1002.

To the time of Hugo also belong the monastic buildings on the south side of the church, surrounding a small, irregular cloister. The extensive outbuildings to the north, now entirely in ruins and of uncertain use, date from the second half of the eleventh century, as well as the likewise ruined guest-house near the entrance.

(To be concluded.)

JAPANESE COLOUR-PRINTS AT THE VICTORIA AND ALBERT MUSEUM.

A LECTURE full of interest to the artist as well as to the layman was given at the Victoria and Albert Museum by Mr. Edward F. Strange. The lecture was one of a series which has been arranged with a view to promote a more comprehensive study of the museum collections, and at the



PORTRAIT OF THE ACTOR MATSUMOTO KOSHIRO II. AS A SERVANT, WITH A PIPE. By SHARAKU, 1790-1795.

same time to give a wider range of appreciation to its treasures.

Incidentally it may be remarked that for the last five years our two great museums have given their hospitality to University Extension lectures on Greek art and architecture, enabling the collections to be studied on the spot.



THE CHRYSANTHEMUM FESTIVAL. By KITAGAWA UTAMORO, 1754-1806.

Mr. Strange gave an outline of the history of the Japanese colour-print, and to the uninitiated it must have come as somewhat of a blow to learn that that art was not indigenous to Japan, a name which now seems synonymous with the highest standard to which art can attain, but that the Japanese received at least one branch of their art from Europe, or, to be more exact, received the means of expressing it from the West, for the inherited genius of generations of artists could not fail to manifest itself through the foreign medium.

It is to the Jesuit missionaries to China and Japan in the sixteenth century that we owe the Japanese colour-print so much appreciated at present with all its wonders of composition, line, and colour.

German and Italian "chiaroscuro" wood-engravings dating from 1506 to 1510 were thrown upon the screen to show the source whence the art originated.

Block printing, however, in one colour—black—existed in China as early as the fourth century A.D.

In the eighth century it is found in Japan, but it was not until the beginning of the seventeenth century that a Japanese book was illustrated with woodcuts, and in 1667 a pattern book of women's robes was printed in coloured inks. Prints, however, were still coloured by hand for some time after the introduction of the colour-block.

The characters of the writing we admire came originally from China, and to this day the old Chinese characters are used in formal documents.

To a people trained to perfection in the use of the brush for their ordinary as well as for their ceremonial inscriptions, drawing comes easily.

The brush is not held as we hold the pen, for hand and

arm are both utterly unsupported and free, requiring a decision and steadiness of touch in themselves—the best possible practice for a draughtsman.

In the early seventeenth century Christianity was entirely exterminated in Japan, and with it the art of the colour printer introduced by the Christians. It was more than a man's life was worth to be known to practice a Christian art or to be in possession of anything in the least connected with Christianity; thus it was not until nearly the beginning of the eighteenth century that the wood block reappeared in Japan, borrowed from China, the Chinese having retained it in spite of its origin.

The principles of Chinese art show philosophical ideas, ideal and abstract; and the early Japanese prints were in the beginning copied from Chinese paintings.

The art of the wood-engraver was essentially the art of the people, looked down upon and scorned by the great school of painters, members of the aristocracy who held office under the Mikado himself or in the establishments of the great nobles.

But the colour-print artist was merely an obscure artisan whose social condition was below most of the other arts or trades; nevertheless, he loved to call himself a "painter."



KOREAN MUSICIANS. SIX WOMEN IN KOREAN COSTUME PLAYING MUSICAL INSTRUMENTS. By SHUNZAN, 1780-1810.

and looked upon the colour-printing merely as a means of "pot-boiling."

Even lower in the social scale than himself was his patron, who ranked below the lacquerer, carpenter, or maker of swords, but who, by his art, made vast sums of money: the patron was the actor!

The popular theatre in Japan was a place in which no decent person would be seen, but it afforded a wide scope for the colour-print artist who painted the actors in their various parts, as well as behind the scenes, rehearsing, or going home in the pouring rain when once the play was over. These scenes found favour with the populace, to whom they were sold for the equivalent to a halfpenny, but everything connected with the art belonged typically to the lower classes, and had very little to do with the art of the cultured Japanese.

The production of a print was the work of three men. The first of these was the artist who made the design in

Indian ink on thin paper. This was handed over to the engraver, who pasted the drawing face downwards on a block usually of wild cherry, a wood somewhat similar to the pear-wood used in Europe during the fifteenth and sixteenth centuries. The upper surface of the paper was next rubbed away, and the outlines of the drawing carefully followed by the engraver, who cut away the unnecessary wood, leaving all the lines in relief. These were cut with the grain, and not across it.

When the first or key block was cut it was handed over to the printer who, after duly inking it, placed a sheet of damp paper over it, and by hand rubbed an impression off the surface with a pad, thus retaining full command of the gradation of each print. A number of these black prints were taken, and the artist next proceeded to paint in the colour. The engraver cut as many colour-blocks as were necessary, sometimes as many as eight or nine, and the set was handed over once more to the printer, who printed the colour in block by block.

Two cases are to be seen at the museum containing a set of tools and materials, but the marvel of all is the wonderful precision with which the work was executed, and this can be seen in the three rooms 71-73, which have been arranged with the beautiful collection lent by Mr. R. Leicester Harmsworth, M.P., and which formed the subject of the lecture.

LONDON ARTERIAL ROADS.

A CONFERENCE was held on Tuesday last at the Caxton Hall, Westminster, under the auspices of the Local Government Board, of local authorities and others interested in the improvement of arterial road communication in Greater London. The Rt. Hon. John Burns, President of the Board, presided. The meeting was largely attended.

Mr. John Burns, in opening the Conference, explained that in accordance with the promise made by the Prime Minister in July last they were there to resume, in a more practical form, the consideration of the great subject which had brought that deputation together and that waited on Mr. Asquith at the House of Commons. It was a great pleasure to observe that the composite character of the deputation had been maintained at the present Conference, and it was with delight he saw architects sitting side by side with engineers, surveyors with town planners, and artist with housing reformer. That simple fact in itself illustrated that the subject of road and town planning, and town planning with roads, had made enormous progress during the last three or four years. In welcoming those present, he might say that it promised to be one of the most useful conferences he had ever attended in London.

Their object was to arrange some method by which the area of Greater London could be better served by better roads, more spacious and dignified approaches, than those they now had. The subject of roads and traffic had been dealt with in the last ten or twelve years by Commissions, by Departments, by the Traffic Branch of the Board of Trade, by the Road Board itself, and by local authorities; each and all in a not altogether satisfactory manner, acting quite separately, independent of each other, often ignorant of each other's proposals and desires, and at times unconsciously hostile to each other. As a result of that lack of unity enormous tracks have been covered, roads developed, and streets made, all not quite so well as they would have been if there had existed a considered and harmonious understanding over all the districts. There was, of course, a danger in too much uniformity because without variety one often got monotony, and with monotony much of that picturesqueness typical of English local life was destroyed or prevented, and one tended towards the draught-board pattern of thoroughfare and the Hausmannising of roads and streets. This meant monotonous, needlessly-wide streets which were very costly to maintain. There ought to be, however, some means by which approximate unity could be attained. That would mean a great economy in money and saving the future from the costly, ugly, and largely-avoidable blunders that isolated action in the past has bequeathed to us to-day. Here was their chief reason for the Conference. Roads are a costly business to make when new, and as time went on they would not cheapen. The most extravagant thing in connection with roads was the widening of old ones which were originally made too narrow. The principal duty of the present Conference was to save the future from such avoidable waste. But they must carry the ratepayer with them. The ratepayer and his money was, after all, at the bottom of that business. During the

last ten years £104,000,000 had been spent in England and Wales on roads. The road surfaces were undoubtedly much better than they used to be. London in ten years had spent £18,000,000 on its highways. In that year the expenditure will probably be over two millions.

The amount of traffic was wonderfully on the increase. Indeed, he had arrived at the opinion that a good deal of traffic was coming on the roads which, if some prescience had been shown in the making of our railways fifty or sixty years ago, would have been carried better and cheaper by rail. The traffic was increasing rapidly in volume and speed, the vehicles were becoming larger, wider and heavier. Extra space in road width was essential in certain areas for economy in time and safety. It was to save the London of the ultimate future, and even of the immediate future, from those charges for street widening which the citizens have now to meet, because half a century ago there had been no Conference such as that present that they were met that day. How fast London was filling up! In merely six years there had been 1,100 streets constructed, 75,000 houses erected, and over 300,000 acres had become urban. That was to say, a city of nearly 400,000 people had sprung up, and an area equal to two counties of the size of Middlesex was converted from rural or semi-rural character into urban districts. They had been absorbed often without consideration to old roads, beautiful amenities, and natural features, which they ought not to allow to be swept away. Nothing had given him greater pleasure than to see in the morning's paper that Wimbledon had decided to acquire 175 acres of Wimbledon Park. He was also delighted to read that the Corporation of Richmond had been successful in inducing a Government department not to vandalise a river-side walk. "These are signs," said Mr. Burns, "that popular taste, executive desire, and administrative necessity are all trending towards a greater grip of the roads and town-planning problem."

In the past four years they had obtained greater power to deal with these problems through the agency of the Town Planning Act than they ever had before. The Act was available for roads as well as for the planning of towns. The general feeling for better roads ought to be utilised. In each case the central and the local authorities had to be united so as to secure the best result. There was evidence of this being attempted. In England and Wales two hundred local authorities were town planning, or were thinking out town-planning schemes. In Greater London there were eighty local authorities, and of these thirty-eight had reached various stages of town planning, and in their schemes dealing in a practical way with roads, eleven of the thirty-eight had submitted schemes affecting 23,000 acres.

Birmingham had done admirably in this matter. No one could take up any one of the five town planning schemes which Birmingham had projected but what he would admit that there roughly was the model and exemplar for the Greater London areas to follow. The eighty London authorities, relying, as they had a right to do, on the chief and natural town-planning authority, the London County Council, might do worse than take the Birmingham method of procedure as a model. He referred to Birmingham because that city had used the Town Planning Act not only in widening roads, but in making new roads as well as in their alignment and diversion; their scheme has helped housing, improved traffic facilities, and prevented the springing up and stereotyping of those slums which existed in nearly every large manufacturing centre. In Birmingham the roadways vary as necessary from 18 feet to 100 feet in width.

By adopting the Town Planning Act a number of difficulties were brushed aside which confronted authorities under the previous legislation. It permitted of a wide variation in the width of roads, for instance. The Local Government Board were willing, when necessary, to modify the existing by-laws with regard to the minimum and maximum widths of roads so as to meet local requirements. Widths of roads could be fixed with a view to subsequent increase of traffic, but with immediate provision for only present needs. The eventual advantage of all this to the ratepayer would prove to be worth all the trouble and sacrifice it might entail. To the owner of the land it will prove as profitable as the 404 garden squares in London have proved to be to the existing owners, though made 100 or 150 years ago. In the next twenty-five or fifty years there ought to be in cash a great saving, there ought to be in the appearance and in the beauty of streets and roads

a tremendous advance, and, generally speaking, they ought to make London what Sir William Dunbar called four hundred years ago, "The flower of cities all." They ought to make London not only abreast of all other towns and cities, but by virtue of its age, its experience, and the honesty of its local government, the leading city in this matter of roads and town planning.

He would suggest local conferences among the various authorities of adjoining districts as the best method of operation. For, however important State Departments were, English people in the main prefer to be governed by their own local authorities than from a central body. Any politician who adopted any other view was bound to come a cropper. At present one particular road might be under two, three, four, or even five different authorities, each going their own sweet way. It was not so much cash that was wanted for this question as ideas and generous co-operation. Foresight was more valuable infinitely than money. United action would reduce the cost for each. Three or four million pounds were now spent on roads in Greater London each year. Of that a large proportion was spent either on new roads or the widening of narrow roads. Local conferences would effect economy or give better results for the same money. They would not deal with the ordinary street improvements in the London area, for those would proceed as before. In the 74,000 acres under the London County Council there were still 1,200 acres without houses; these ought to be taken into consideration by those joint conferences. There was not much good in Greater London going in for town planning if the inside did not keep pace. London required more street widening. In order to economise in time, speed and transit, it wanted five new bridges (especially one at Lambeth), or the widening of existing ones, in addition to the two bridges already planned.

Special regard or privilege should not be given to motorists, or to any special section. Motorists were getting their share of nearly everything, and some of them were too often presuming upon their position and looking to other sections to provide for their convenience in rapid transit. The interests of the whole community must be considered as a whole.

There must not be any more authorities appointed. Those who proposed their creation were anxious for delay because too many authorities made for delay. There were, indeed, too many authorities already. He believed the existing authorities would by means of conferences suffice. It was not to be expected that the State was going to subscribe for Greater London as against the provinces. The problem in London was only a replica of what they had in Manchester, Plymouth, and so on. They should avoid pet schemes, and above all they ought not to indulge in the construction of dream roads, but remember the rates and taxes. During the last ten years the rates and taxes have risen 30 or 40 per cent. It was true a considerable proportion of that was due to the errors and neglect transmitted to them. What was needed was co-operation among local authorities, and help, guidance and some cash from the central authority. At the Local Government Board they were willing to facilitate things so that authorities might go ahead; they were willing to arrange the local conferences suggested. The practical and businesslike way was to get the ideas of the local groups crystallised into such a workable form as to call for another Conference like the present one. Fifteen or twenty years hence they would get their reward from posterity.

DISCUSSION.

Sir Aston Webb, C.B., R.A., speaking on behalf of the architects, thanked Mr. Burns for so clearly laying the matter before the meeting. Mr. Burns had contended that another further authority was not required. On that point they agreed with him, but they did think that if the various schemes were to be brought forward there was wanted some one central authority, or power, to say, "This line of road running through the areas of the various bodies is better than another line," or "This is the best way, and this is how it should be done." They were trying to think of London as a whole, and they could not help thinking there ought to be some single body by which ultimately, after the Conference, everything would be determined. He greatly feared unless this was done the delay would be prolonged. In order to save time one or two societies, such as the Royal Institute of British Architects, the Surveyors' Institution, the London Society and the District Surveyors' Association had unanimously agreed that while they were ready to assist the Conference and smaller Conferences, they were strongly impressed by the urgent necessity for

giving a central authority power to deal with the main roads of London. That did not mean another authority. When they had recently the honour of laying their views before the Prime Minister he said he was impressed with the necessity for a central body.

Sir Alexander Stenning supported Sir Aston Webb on behalf of the surveyors. Local conferences were essential; but having had them there should be some authority like the Local Government Board to decide that such and such roads should be carried out. At the present moment there were several authorities each fighting to have its own way. Some strong body was necessary to co-ordinate the whole.

Mr. Fitzroy Doll also supported Sir Aston as to some central authority being absolutely essential. Such a one would decide if an improvement was a metropolitan or merely a local one, could decide how much the London County Council should contribute if the improvement were metropolitan, and could strike while the iron was hot and arrangements might be made economically.

Lord Peel (Chairman of the Improvements Committee of the London County Council) said the requirements of London in regard to arterial roads were pretty well satisfied, but its requirements for other roads were much greater. The L.C.C. would respond most readily to the suggested co-operation with local authorities. The Council loved local authorities—especially the smaller ones. The roads going through outside areas were much wider than were required for the purely local traffic, and it was hard that the authority should have to maintain them. The only solution was that certain main roads should be taken over by the State. The London County Council was at present spending £900,000 a year—a fivepenny rate—on interest and sinking-fund for past improvements. That fact would explain their apparent slowness in making contributions to other bodies.

Mr. Boggon (Chairman of the Finchley Council) agreed that what was wanted was some authority to which any local authority could go and get a definite decision instead of, as now, being referred from pillar to post. In Finchley there were 1,000 acres of undeveloped land, for which they were preparing a town plan. The preceding day, however, they had been notified that another railway was going right through that area. In the absence of any central authority they were helpless. What was wanted was some authority which would say where these railways were to go, not merely where the great central roads were to go, and that the railways were not to interfere with the amenities, which were for the benefit of the district and also for London at large. London would have to be considered as a whole. Perhaps a new man and a new department would be necessary.

Alderman W. Thompson (Richmond) said he had come with a mandate from the fifty local authorities who had considered this question that there should be sectional conferences. At those conferences they would welcome representatives of the great technical societies if they were willing to give their services for nothing. They asked the Local Government Board to see that all the local authorities who have not already set about making town planning schemes should be called upon to do so. Up to the by-law width the cost of making roads should be provided by the local authorities, and a central authority should pay the balance of cost. Also, a guarantee was needed from that central authority to the local authority that the approved roads when included in a scheme should be continued at either end. They asked that State roads should be paid for by the State, district roads by the districts, and joint roads by the various authorities. It was hoped that some power would be given to local authorities to determine the character of the traffic on their roads.

Mr. Register (Middlesex County Council) differed from Sir Aston Webb as to the need for a central authority. He contended the country already received too much dictation and too much interference. If existing powers were to be taken away from great bodies like County Councils, England might just as well be completely governed by permanent officials. One of the essentials for local self-government was there should be responsibility and trust. In fact, more rather than less confidence ought to be placed in them.

Mr. Lovelock (Carshalton Urban District Council) said some authorities, like his own, had their town planning schemes hung up because of this unsolved question of arterial roads. It was clear to him there should be a thinking head, but it was not necessary to set up a new authority.

Mr. Gordon (London County Council) said the L.C.C. had problems of intensity of traffic which were greater than those of any other city in the world. Mr. Burns' address had not helped those concerned with the central area. They could

not have town planning in Holborn or Stepney, but they had their own road problem. The real solution of the whole difficulty was on the lines suggested by Sir Aston Webb. It was absolutely essential there should be co-ordination and unification in road control. In that lay the essence of the whole problem. In his opinion, it was necessary some central authority should be given control of main roads. That authority must be, however, a municipal one.

Mr. H. R. Aldridge (National Housing Council) said that the Town Planning Act did not apply to the undoing of the mistakes of the past in Central London. But the London County Council had 12,000 acres of unbuilt-on land in their area for which they might utilise their town planning powers. Mr. Burns was justified in his praise of the Birmingham procedure, because from the economical point of view the Birmingham way was the right way. It was unfortunate that when things began to be done in a big way politics immediately stepped in.

Mr. Brown (West Ham) asked where the money was to come from in such heavily rated districts as his own for arterial roads. He agreed that one of the great State Departments should take the matter in hand.

Mr. W. H. Seth-Smith, F.R.I.B.A., agreed with the suggestion of Sir Aston, and pointed to Croydon as affording an instance of where a whole scheme could be crippled by the absence of some central authority to say "That is not the right way to do it."

The Town Clerk of Kingston-on-Thames pleaded that while they were considering the provision of new roads they should not overlook the old traditional ones.

Mr. Elgood (Ruislip) contended that local conferences would be perfectly useless if they were confined to local authorities. They must be conferences at which the central authority was also represented.

Mr. Raymond Unwin, F.R.I.B.A., said they were all agreed on the calling together of district conferences, and he believed they would accomplish much. The professional gentlemen who had already associated themselves with the movement were prepared to give all the assistance they could. The London Society was engaged on the question of open spaces for the whole of London. Mr. Burns had given them a good lead in suggesting district conferences, but those conferences should be town planning ones, and not merely road conferences. In the final resort there must be some person or body who, having looked at the question all round, could render the conference fruitful, even if there was not unanimity among those attending it. He did not want an extra authority, but they did want some central power to step in and decide, and thus make the conferences effective. There was a function for such a central authority to perform without over-riding the local bodies, and that was by making big suggestions. Town planning was a big thing. Colonel Heller had already given some big ideas for the local authorities. The latter needed guidance from those who could see the whole question. The mere fact of there being someone ready to be called in in the event of a deadlock between authorities would doubtless render it unnecessary for anyone to step in at all.

Mr. Wood (Clerk of the Surbiton Urban District Council) stated a large number of local authorities in Greater London had no welcome to offer the proposed arterial roads, because of the expense to their ratepayers, which they could not afford. They might approve the principle and the position of the roads; but local needs were adequately met by present roads. But the cost of roads was usually met by the owners, and not by the local authorities. Consequently, a very special case would have to be made out to induce the latter to put their hands into their pockets. The town planning central authority ought to be the road central authority, for the two were bound up together. The success of Birmingham showed the necessity for London having a central authority.

Mr. Tagg (Camberwell) declared that what the deputation really went to the Prime Minister for was a State grant for main roads. It was impossible to talk to metropolitan boroughs like his own about large increases of expenditure on main roads. In some cases these carried traffic and business right through the authority and beyond. The central authority should make the roads. At present the Road Board gave them too much sympathy and too little cash.

Mr. Keir (Hammersmith) deprecated leaving matters in the hand of a central authority. In the past they had put forward schemes without local consultation. A new road was projected in his neighbourhood which was laid out on wrong lines and which was uncalled for by local needs.

Mr. Kendall (Epsom) said Epsom had no use for the projected wider roads. His district was sixteen miles in length, and if they made the road suggested—for the benefit

of traffic other than their own—they would be in the Bankruptcy Court.

Sir George Gibb (Chairman of the Road Board) explained that the Road Board had certain statutory duties to perform over all the kingdom, and not for Greater London alone. He sympathised with the general view of the Conference. But he did not agree that only a little progress had been made. Progress had necessarily in such a matter to go step by step. The speakers suggested there should be sectional conferences: that seemed to him to be the only useful step possible at present. The Road Board were unable to make grants until the projects have been thoroughly considered by the local authorities. It seemed to be supposed the Road Board had hoarded millions. Its income up to October 31 last was £4,000,000. They had set aside, as directed by Parliament, £800,000 to meet trade depression when that should unfortunately come. That left £3,200,000. They had definitely promised grants of £2,855,000, and had further committed themselves to loans to the extent of £984,000. That was £3,800,000 against an available income to date of £3,200,000. The total amount of licence duties in London was only £17,000. Of course, there was the petrol duty, which probably reached £150,000 a year, and that was mainly paid by motor-omnibuses. The borough councils were at present feeling the stress of the damage to their roads by the 'buses. They would not thank the Road Board for giving too much assistance to town planning schemes. Mr. Burns had said it was not cash so much as ideas that were wanted. He entirely agreed. At present the obligation to make roads on land not built upon rested with the landowner. The landowners were embarrassed by the want of some authoritative plan in their districts. If the Road Board could assist in any way they would, in the same way as they had assisted Birmingham, with a grant of £20,000 when they came forward with a definite and good scheme. An engineer from the Road Board would, if desired, attend the local conferences.

Mr. John Burns, in closing the Conference, said that if that meeting had done nothing better than to bring together Ministers, permanent officials of State Departments, and local authorities in a friendly and kindly way it would have achieved something very useful. The Road Board, the Local Government Board, and the Traffic Branch of the Board of Trade evidently did not go on playing the game of Box and Cox with almost ambassadorial language. He gathered that the Conference agreed to local conferences being formed, and that they should be convened by the Local Government Board. He was prepared to urge local authorities in Greater London who had not already prepared town planning schemes to do so. He gathered that existing central authorities should get together more closely than hitherto. The time had nearly arrived when someone would have to suggest to the Prime Minister that it was possible that town planning and road work and the subsidies, whether for road surface or widening or any other purpose, could come better from the separate Department that now did the loan sanctions, dealt with roads, held local inquiries for loans, and so forth. A great deal of space was utilised at road junctions by underground approaches, lavatories, sand-boxes, and other things that interfered with traffic, and might well be placed elsewhere. These turntable places, like the Elephant and Castle, Vauxhall Cross, Tooting Broadway, and so forth should not be so obstructed. It frequently happened that it was cheaper to spend £100,000 in widening a section of an old road than to divert the traffic. He would communicate to the Prime Minister how pleased he was with the representative character of the Conference, what an excellent beginning they had made, how tolerant they had been of each other's views, and that there might evolve from the meeting a more unified and centralised supervision of both town planning and road construction.

MR. F. S. CHESTERTON, 150 Cheapside, the architect by whom the original building was designed, is superintending the carrying out of extensive additions to the mansion of the Duchess of Sutherland at Roehampton.

THE historical church of Fotheringhay is in urgent need of restoration. It is one of the most perfect specimens of Perpendicular work in England, and contains the tombs of Edward, Duke of York, who led the English archers at Agincourt, and Richard, Duke of York, slain in the Wars of the Roses. Dr. Mandell Creighton described the church as "a national historical monument appealing to the whole nation for its preservation." A total of £3,500 is required for the whole work.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

THE President, Mr. A. E. Kirk, A.R.I.B.A., occupied the chair at the opening general meeting, and after the reception proceedings commenced with his

Presidential Address.

In these days of bustle and hurry time flies so quickly it only seems yesterday that I occupied the position I do to-night of addressing you as your President, but another year has gone by, and you have done me the honour of electing me your President for a second time. I can assure you that I shall endeavour to promote the interest and welfare of the Society.

Firstly, I must thank members of the Council and officers of the Society for the support they have given me in the past year. You all know the usefulness of a Society like ours is largely affected by the spirit and energy which its Hon. Secretary brings to his task. In Mr. Whitehead we have an official whose enthusiasm and devotion to his work is great. We offer the best thanks of the Society to him. Mr. Whitehead has arranged a very interesting syllabus of lectures for the session. I trust that members and Associates will endeavour to make it convenient to attend. They will be held in the Institute at the usual time.

The finances of the Society, I am pleased to say, are in a sound condition. Consequently the Council had been able to make valuable additions to the library, and they hope to purchase more books this year. Nothing of importance has happened during the Society's year, but I can assure you that it has done a considerable amount of quiet, unseen, but, nevertheless, useful work during the past session.

Through the kindness of Messrs. Rowntree, the Society visited their factory at York and the model village at Earswick. Mr. Swain acted as guide and explained some interesting examples of ferro-concrete construction at the factory.

The School of Architecture continues to do good work under the able guidance of Mr. Coombs. It is regretted that the school is not recognised by the R.I.B.A. During the year it has been visited by Mr. Blomfield on behalf of the Board of Education, and also by Mr. Needham Wilson and Mr. Gerald Horsley on behalf of the Board of Architectural Education of the Institute, who all reported favourably on the work being done. I am glad to say that this year the students will have the benefit of visits from practising architects in the city. Messrs. W. H. Thorp, S. D. Kitson, and J. C. Procter have undertaken that task. Their criticism and advice will be of great advantage. One of our members, Mr. J. H. Farrar, has been successful at the Royal College of Arts, South Kensington, winning the travelling prize, and he has been awarded the diploma of A.R.C.A. Mr. Farrar has just been appointed architectural master at the Cambridge School of Art.

Registration, I regret to say, has not made much progress during the year. The special committee appointed by the R.I.B.A. has at last issued a report, the sum and substance of which is that the time is not opportune to promote a Bill on account of the enormous amount of work before Parliament at the present time. Mr. Blomfield, in his presidential address, says, "I will remind you that such questions can only be settled by pulling together. It is not to be supposed that any method can be devised which will be wholly acceptable to everybody, but when the solution to which I refer is suggested to you I feel sure that this esprit de corps will have the full scope and bearing that it should have in a great profession like ours, and that we shall not trust in vain to this same honourable sense of fellowship."

Mr. Blomfield's words are most statesmanlike, but if one could read his thoughts, the President of the Institute this year foreshadows that he is in favour of moving one step nearer the goal. With regard to the provinces, there is no doubt we shall pull together and show a united front, and I hope London will take this to heart and come into line. It is to be hoped a permanent solution of this difficult question will soon be found for the benefit of English architecture.

Since writing these words the R.I.B.A. have issued a further report on the subject, and have called a meeting of members for December 1 to consider same. Although most of the replies from the allied societies are in favour of proceeding with the Bill of Registration, the Council are strongly impressed by the reluctance of others to take such a

either, he is apt to keep his money in his pocket, and not to buy at all or to buy recklessly from any man with whom chance or interest may bring him into contact.

Lord Milner, in proposing a vote of thanks to the President of the Institute, said: "Of all the arts, architecture is the one that has the largest range of influence and the welfare of which was of the most vital importance to the great body of the community."

The cure lies in the education of the public taste, and certainly some progress has been made during the last twenty years. Thanks to such papers as *Country Life* and *Photography*, the public are being influenced to appreciate what is good. Fortunately history is now being written as a continuous development, and the lay mind is able to unravel the mysteries of architecture, and by degrees the public will demand better work. We in our turn should strive to give always of our best. Architecture in England is certainly alive. We have left behind a striving to be original for originality's sake, and are now working on sound lines, trying to pick up the motive left us by Wren and Cockerill. In so doing we shall in time work out to its logical conclusion our own traditional phase of the Renaissance, and fresh problems will arise demanding new ideas. Let us see that we are masters of the old forms, and use them to their best advantage.

Mr. G. F. Bowman proposed a vote of thanks to the President, and Mr. H. S. Chorley seconded same.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

THE first meeting of the Nottingham and Derby Architectural Society since their amalgamation was held in Nottingham on November 18, when Mr. E. R. Sutton, F.R.I.B.A., occupied the chair.

A business meeting having been held, the President, in the course of an address, expressed a hope that the amalgamation of the two Societies would produce most beneficial results, and acknowledged the high honour conferred upon him by the members. Having alluded to the distinctions achieved by Nottingham architects, he mentioned the fact that Mr. Frederick Ball was the first architect who had aspired to wear the Mayoral robes and chain of office of the city. Mr. Sutton observed that the continued depression in the staple industry of Nottingham had been vividly reflected in the building trade, and had affected most of them. He hoped, however, they would all have a busy time in the near future in designing schemes for the several competitions which would doubtless be promoted by the Corporation of Nottingham. These would include competitions for several free libraries which Mr. Carnegie was presenting to the city, for the Central Free Library and Museum which he presumed were to be erected on the site adjoining the Guildhall premises, and the competition for the new Town Hall. Mr. Sutton advanced some useful suggestions for reducing the labour expended on competition drawings, and outlined the steps taken by the Royal Institute with regard to the subject of registration.

The Council had appointed a very strong representative Town Planning Committee, who were looking after all schemes in their district. They had invited Professor Adshead, of Liverpool, to read a paper on Town Planning, and the Mayor had kindly granted them the use of the Exchange Hall and promised to preside. A movement was in progress for a creation of a Ministry of the Fine Arts, and so far as he could ascertain the duties of the Minister would be to advise on all questions of art. What they needed in Nottingham was a pile of buildings worthy of the city, which would be monumental in character, and include accommodation for the several administrative departments of the municipal trading undertakings. Such a building would be a valuable asset, and Mr. Sutton hoped the City Council would not lack the necessary enterprise to take immediate steps to bring such an important project to a successful issue.

At the conclusion of the address the members adjourned for light refreshments, kindly provided by the President, after which the matters mentioned in the paper were discussed, and it was decided to send a congratulatory letter to the Mayor.

Mr. E. H. Heazell proposed, and it was heartily agreed to, that their best thanks be given to Mr. Sutton for his interesting address and his kind hospitality.

HOUSING CO-PARTNERSHIP.

THE sixth anniversary dinner of the Co-Partnership Tenants, Ltd., was held on the 20th inst. at the Connaught Rooms, W.C. Mr. Leopold de Rothschild presided. Among those present were the Lord Mayor and Lady Mayoress of Liverpool, Mr. Henry Vivian, J.P., the Right Hon. Charles Booth, Sir F. S. P. Lely, Sir Richard Stapley, Mr. J. F. L. Brunner, M.P., Colonel G. T. C. Plunkett, Mr. S. L. Sutcliffe, Mr. J. H. Greenhalgh, Mr. Raymond Unwin, Mr. Richardson Evans, Mr. Charles Booth, and Mr. F. Litchfield, secretary.

After the loyal toasts had been honoured,

The Lord Mayor of Liverpool (Mr. H. Rathbone, M.A.), proposed "The Co-partnership in Housing Movement." It might appear strange, he said, that the civic representative of Liverpool should have been selected to propose the toast, because it was not many years since that city was described as "the black spot on the Mersey." Sixty years ago housing conditions were terrible. His grandmother had recorded in her diary of a visit paid by a medical officer to a patient suffering from typhus or cholera, and who had to use stepping-stones in order to avoid the filth on the floor before reaching the patient, who was lying on straw in a corner. Year after year thousands had died from cholera and typhus. There were, of course, special housing difficulties in Liverpool. But no city had since made such courageous and comprehensive endeavours to cope with them. The Corporation's efforts were at first confined to demolition. About fourteen years ago it was seen that a system of rehousing was also necessary. Since then over 5,350 houses had been demolished and nearly 3,000 satisfactory new dwellings erected, over



ORCHARD AT THE HAMPSTEAD GARDEN SUBURB.

2,200 of which had been reserved for the dispossessed by the Corporation. The cost of all that had been already more than a million, and a further half-million will have to be expended before the work is finished. The result had fully justified the great expenditure involved. Cholera had entirely gone, typhus had practically disappeared, the general health of the people had greatly improved, and they were better citizens in every respect. All this expenditure might have been avoided if the principle represented by the co-partnership housing movement had been understood and acted upon generations ago. Had Liverpool after this costly lesson learned wisdom and taken precautions to avoid a similar condition of things in the future? They had regulations to prevent the building of houses back to back, and to secure a certain amount of air space, and they had excellent provisions regarding the making of streets. Over sixty-one open spaces already existed, and they had recently voted £66,000 for two additional parks. Wide streets were being provided. In fact, there was no provincial city in the United Kingdom which had such generous provisions in regard to parks and open spaces as Liverpool. There were, however, growing up in the outskirts rows and rows of box-like structures with no gardens, houses so dreary that sometimes he wondered not that some people living there were drunken, but that any were not. In his lifetime he had seen Liverpool extending into the area where he resided, over a distance of two miles, mopping up green fields, stately trees, and beautiful country, and replacing these with houses of the dreary type he had described. As houses got worn and dirty the tenants became tired of them, and they moved further out to new houses, while a less satisfactory class of tenants came into the houses they had vacated. In time, these latter tenants moved out, and other tenants still more unsatisfactory took their places. The people went from the houses because there was nothing to attach them to the dis-

strict or to the house. If the house were attractive, if they had a bit of garden, and if there existed a social life in the neighbourhood they would be loth to leave it. There was a little oasis in one of the Liverpool suburbs—the Garden City at Wavertree. Here everything was different. The tenants there had an interest in the property; they had gardens and a social life, and every man acquired not only a pecuniary, but a sentimental interest in the place. There was to be found a real solution of the housing difficulty. Liverpool people were unimaginative, but the Wavertree Garden Suburb had stirred their imagination. If he could prevail on representative Liverpool men to visit the Hampstead Garden Suburb, as he had done, they would be profoundly impressed, and would realise what the great possibilities of the Liverpool Garden Suburb were. Their doubts and scepticism regarding co-partnership housing would disappear, and he believed the old, vicious system of building, which resulted in the dreary rows of houses in Liverpool, would disappear.



VIEWS OF THE LIVERPOOL GARDEN SUBURB.

The Lord Mayor of Birkenhead (Mr. James Moon, J.P.), in responding as one of the directors of the Liverpool Garden Suburb, said he owed everything he knew about housing to Mr. Henry Vivian, and the pupil was now as enthusiastic as the master. They were living in days of great unrest, and many people were trying to diagnose the cause. He had seen a great deal of the working classes—he had worked at the bench—and he was convinced that the one great cause of unrest was the condition in which the working classes were allowed to live. When they considered the enormous wealth there was in London and the great provincial cities, and compared that with the conditions in which the men who were doing the work of the country and producing its wealth had to live, it must give serious cause for reflection to every serious-minded man. It was not so much a question of wages or that working-men were envious of those better off, but it was largely a question of discontent with the miserable conditions under which they had been allowed to grow up. He believed that housing reform would do more than any-

thing else to settle the discontent of the present moment, and he regarded it as one of the best investments the country could make. The conditions under which men had to live now tended to inefficiency, and it was to their economic interests as a nation to alter them. When they reflected that millions were spent on building battleships that would be no use in ten years, whilst the working men had to live in hovels, it was high time the public conscience was roused in regard to this question of housing reform. There was one obvious way in which the wealthy could help, and that was by providing the money necessary to prosecute the work. In Liverpool they ought to be building at four times their present rate. In London, with its enormous possibilities, it ought to be possible to raise £1,000,000 in a day for housing reform. Personally, he placed housing reform before any question of the day.

Mr. Henry Vivian, J.P., in also responding to the toast of "Co-Partnership Tenants, Ltd.," said they had every reason to be satisfied with the confidence of the public in their enterprise and the progress made. It was six years since he invited Mr. F. Litchfield to become the Secretary of the Society which he was then forming. They began with the modest capital of a few hundred pounds, an office about 6 feet by 12 feet, and one employee. They had persevered and built up their movement until they employed upwards of a thousand men and had built a million and a quarter pounds worth of property. The Society was now engaged in developing a dozen different residential estates, on which they had erected and let over 3,000 houses, while another 7,000 were to be built. When these were complete they would have spent over £3,000,000. The Co-partnership Tenants, Ltd., had never failed in their obligation to their investors for a single day, and had regularly declared a 5 per cent. dividend on shares, at the same time building a satisfactory reserve fund. Whilst the Co-Partnership Tenants, Ltd., were proud of business success, they claimed that good security and a fair return to investors were harmonised with the public good. They held very strongly that public utility, beauty and health need not conflict with sound business principles; indeed, sound business principles were made more possible where, in the development of residential estates, regard was made for these three considerations. Capitalists and men of enterprise must take a longer view than they had been accustomed to if permanent as against temporary and fleeting prosperity was to be secured. All methods which destroyed health and crushed imagination and love of order were, in the long run, wasteful in productive power. Nationally we were moving in a vicious circle in many social and economic questions. We were told people could not pay an economic rent for a decent healthily situated home, because their wages would not enable them to pay an economic rent because their conditions prevented them from being mentally and physically able to earn a larger wage. So they went round the circle of bad uneconomic conditions. The Co-partnership and other garden suburbs had demonstrated beyond doubt that a much healthier and more efficient life of the individual was possible with security and a fair return to the capital involved. Speaking of the Liverpool Garden Suburb, the building surveyor had said that "the beneficial effect on the character and well-being of the people who live in such surroundings must be incalculable." The medical officers of health wherever such suburbs were developing confirmed this view. The death rates are brought down to the minimum possible; above all, they saw on these suburbs the full life-saving effect in the case of the children. The infant mortality on the Hampstead Garden Suburb was about 11 per 1,000, and even lower in the case of the Harborne Garden Suburb, whilst for the country it was 95 per 1,000, and for the crowded parts of the big towns it went up to somewhere about double 95. The earning power of those brought up in garden suburbs from birth, if the relative improvements shown in the death rates even approximately held good throughout life, must be increased very greatly. One good feature in connection with the Co-partnership Estates was that continuous corporate control prevented the property from degenerating as house property often did, and then the value of the security was kept up. Public confidence in the Co-partnership enterprise was increased with the growth of the business, and they had raised more capital for their estates during the past twelve months than they had raised in any preceding year. They felt sure that that good condition of things would continue, and that capital for the future would be forthcoming as it had been in the past. The movement was one in which men, women, and all political parties could readily join, and the larger it becomes the more influential will its example be in stimulating others to go and do likewise or improve.

Mr. J. F. L. Brunner, M.P., proposed the toast of the Chairman.

In the course of the evening an interesting series of views of various Co-partnership garden suburbs was shown by means of lantern slides.

During the evening there was a short musical programme.

HOUSE DRAINAGE LAW.

At the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Monday last, the 17th inst., Mr. W. Addington Willis, LL.B., gave the first of three Chadwick Public Lectures on House Drainage Law. The lecture was entitled "The Pipe of Dissension."

The law of sanitary drainage, said Mr. Willis, is scattered piecemeal among many Acts of Parliament, some relating to the City of London, others to the remainder of the Metropolis, and others again to the provinces; and even here the law is not the same for all parts, since, besides numerous local Acts, there are adoptive statutes which may or may not be applied to a given district. These various statutes, and the decisions thereon, constitute a puzzle of uncertainties, inconsistencies, and sometimes absurdities. After a brief sketch of the history and evolution of the present law, the lecturer proceeded to a consideration of the eternal question of "Sewer or drain?" The question is of practical importance. Upon its correct answer depends the liability of maintenance; and if the pipe in question is a sewer on private land the owner's proprietary rights are affected by the Council's rights of access and the prohibition against building over sewers without the Council's consent, which it is in their power to give or withhold, and for the giving of which terms and conditions may be imposed. Owners frequently hesitate between the alternatives of present financial relief, coupled with future possible restrictions on building, and a present liability to maintain the pipes with a free hand for developing their property in the future. As a rule, however, the bird in the hand of present financial relief is the most welcome, and the owner seeks to establish that the pipe in question is a sewer vested in the authority.

The existing uncertainty in the law, or in its application, is to be deplored, and is due to the Legislature having attempted to be too specific and precise in defining terms. The common-sense view is that what a man constructs on his property for his own convenience ought to be kept in order by him. This common-sense view was the one adopted by previous generations in the local Acts before 1848, and in the Model Act of 1847 relating to the subject. In 1848, however, the Legislature set out to define the terms "drains" and "sewers" for all times and circumstances, and repeated this in later statutes. The lecturer next proceeded to discuss the definition of "drain" so far as it is common to all areas.

The definition is so cast that any pipe which does not exactly coincide with the definition falls into the category of "sewer."

The explanation of the word "curtilage" was assisted by the exhibition of diagrams representing the systems of drainage in the three leading cases. If premises are separately occupied and separately rated they will not be considered as "premises within the same curtilage" merely because there may be common access and common accommodation.

Drains may be used for rainwater only, and according to the cases may include the stackpipes on houses.

All drains which are not "drains" are "sewers." But, as it is essential that a sewer should, generally speaking, carry its contents away, pipes which end in a cesspool are not sewers, notwithstanding the apparent decision to the contrary in *Pinnock v. Waterworth*. This proposition was illustrated by two or three cases: *Meador v. West Cowes Local Board*, *Button v. Tottenham Urban District Council*, *Pakenham v. Ticehurst Rural District Council*, and diagrams were shown to explain these decisions.

One of the most interesting and far-reaching discoveries of modern times is that a sewer vested in the Council may exist entirely on private property, and it was the establishment of this principle which has given rise to many of the anomalies and hardships (from the ratepayer's point of view) existing at the present time.

The law of drainage has its doctrine of conversion, for where two drains from separate sets of premises meet they generally constitute a sewer from the point of juncture. These joint sewers may be made lawfully or unlawfully. The astonishing feature of this doctrine of conversion is that,

broadly speaking, if a private individual effects a combination of drainage surreptitiously and without authority the law rewards him, or at least his successors, by throwing the liability of maintaining the unlawful connection on to the ratepayers. A few illustrations were given of what the individual can accomplish in the way of getting rid of the expense of maintaining his house drainage. Eight boroughs in London spend on an average annually £2,100 each in repairing these unauthorised sewers.

The catch-phrase, "Once a sewer always a sewer," must be used and received with caution. A recent case has shown one exception at least to this—namely, when a Metropolitan Council exercise their power to compel a wrongdoer to restore unlawfully constructed drainage to its proper condition. Even if it formerly became a sewer by such wrongful acts it does not continue to be a sewer after the restoration.

The lecture concluded with a consideration of the question whether a rainwater pipe fixed to a house can be a sewer. Mr. Justice Channell in one case regarded the suggestion as ridiculous, but at the same time admitted that decided authorities gave support to it. Ridiculousness is not a fatal termination to a proposition in drainage law. If this were entirely new ground anyone would hesitate to answer the question in the affirmative, and so probably would the courts if they were not bound by decided cases. After stating the facts and decision in *Selles v. Fulham Borough Council*, the lecturer pointed out that the provision of gutters and stackpipes was the subject of by-laws and statutes for sanitary purposes just as much as was the provision for the drainage of yards. Once it was admitted that the definitions of "drain" and "sewer" in sanitary legislation extended to pipes conveying fresh or rain water only it seemed impossible to draw a distinction in principle between a horizontal pipe and a vertical one, or between one affixed to the building and one carried on a concrete bed beneath or at the side of the building. Some day an enterprising and litigious householder will claim damages from a Council for injury done by a leaking stackpipe, or call upon them to repair it. The Court of Appeal may then have an opportunity of distinguishing, if they can, such a case from the decisions already given.

The next lecture will relate to the rights and responsibilities of citizens and Councils, both in the provinces and in London, particularly with reference to drainage of new and existing buildings, the provision of outfalls for drains, and the maintenance of drains. It will conclude with an illustrated description of the manner in which the central authority in London have discharged their statutory duty of dealing with sewage so as to prevent its discharge into the River Thames.

The second lecture dealt with the "Rights and Responsibilities of Citizens and Councils." It commenced by showing the manner in which obligations in respect of drainage were distributed, the power of Councils to make by-laws, and the power of the London County Council to regulate the building of houses in low-lying lands.

The lecturer then started with a bare plot of land upon which he assumed a citizen was seeking to build. He showed the statutory requirements as to drainage, the obligation of the individual to deposit plans, and the duties of the Council in considering them. In this connection it was shown that a provincial authority, passing plans for the joint drainage of several houses belonging to the same owner, could not adequately protect themselves by an agreement on the part of the builder that he and his assignees would for all time repair the joint pipes as if they were drains and not sewers. Such an agreement was not enforceable against the assignees, even if they bought with notice of it.

The manner in which the work was to be carried out after the plans had been approved was next discussed, the by-laws being divided into those directed against the evil of damp and those regulating the construction of the drains themselves.

It was shown that the authority could not compel or authorise the connection of drains in any way which involved carrying them through a stranger's land without his consent, even though the distance traversed was but a few inches.

In the event of no suitable sewer being available within the statutory radius, cesspools may be made, but they must conform to all the by-laws relating to them; and a by-law which required the cesspool to be a certain distance from the house was not unreasonable because in a particular case it was impossible to comply with it.

The powers of a Council to require the adequate drainage of existing houses cannot be exercised to compel an alteration of the drains rendered necessary by the introduction

of or change in the system of sewerage or by the discontinuance of a sewer. This was succeeded by a consideration of the rights of the citizen to connect his drains with the sewers of his district and the obligations of the Councils to provide such sewers.

The maintenance of drains was the next part of the lecture, showing the powers which Councils have to require defective drains to be remedied and nuisances in them to be suppressed.

After short references to the powers and duties of Councils in respect of sewers, the lecture concluded with a description of the manner in which the Metropolitan Board of Works and their successors, the London County Council have, by means of intercepting sewers, prevented the sewage of London from flowing into the Thames within the metropolitan area. The whole lecture was supplemented by an exhibition of diagrams, plans, and pictures.

The third lecture will be given in the same place at 3.15 on Monday, December 1. The chair will be taken by Sir Wm. Collins, M.D., M.S., B.Sc., &c., and admission is free. The subject is "The Combined Drainage Problem" as it exists both in the provinces and in the metropolis.

THE INTERNATIONAL SOCIETY OF SCULPTORS, PAINTERS, AND GRAVERS.

AMONG the many sights designed to attract the public, the Autumn (fifteenth London) Exhibition of the above Society at the Grosvenor Gallery will not be likely to prove the most attractive from an artistic standpoint. There is good—indeed, very good—work to be seen, it is true; but such contributions are in the nature of purple patches, green oases. A Society having M. Auguste Rodin for President, Mr. Strang (A.R.A.) for Vice-President, and Messrs. Orpen (A.R.A.) and W. C. von Glehn among its members may be expected to provide notable work from time to time.

And an exhibition confined to two hundred and seventy items is not too extensive in proportions, either for art critic or general public. Let us in brief survey transcribe some of our impressions.

The President has a really effective bronze in "The Secret," and exhibits great mastery in flow of line, composition, and good modelling. Mr. Strang certainly commands attention with three of his works. "Comfort" is a virile, sympathetic rendering of a homely subject that must appeal to all, with its presentment of the newly-made widow, her eyelids reddened with grief, her face pathetically sorrow-stricken, her attitude quietly hopeless; for her companion we cannot express such approval, though the technique is good. "The Worshippers" (which closes the long vista from the entrance) is another striking canvas, showing a nude model (of course, a female) seated in a *negligée* attitude (to match her lack of attire), and the object of the devout admiration of the four male occupants of the studio. The facial expressions of the latter are good, but it is the girl herself that commands our unwilling admiration—well posed, well coloured, and well drawn. "Bal Suzette" is another of Mr. Strang's striking canvases. Frankly, we do not care for it, but here, once again, we must bear witness to the good work in characterisation, if in nothing else; the central figure is most stiff and unattractive. Mr. Orpen's one work is "An Interior," pretty enough as a furniture piece, but trifling as a picture. Mr. Von Glehn has two exhibits—"The Spinners—Granada," very clever, and worked from a clean, bright palette, and "The Alhambra, Sunset"; the latter makes a real picture, with its foreground of heavily massed foliage, two dark Lombardy poplars on the right, the Alhambra not too pronounced beyond, and behind all the clear, light sky; it is virile work, that arrests the attention.

The works in the corridor are for the most part second-rate. Véra Willoughby's "Theseus and Ariadne" ranks even lower, by reason of crude colouring in general, corpse-like lack of colour for the figures, and misdrawing of the latter. But (to leave oil-paintings for the moment) Mr. Baskett's aquatints, "Landemere" and "The Collier" (which is in the corner gallery) are really good work and very realistic. Mr. Wolmark has two atrocious so-called "decorative" still-life studies in oils, but his "Sculptor" deserves notice for the well-posed figure, even if his colour continues to be an eyesore. Mr. McDonald's "Tête d'une petite fille" is a charming little sketch in red chalk, and one of the few really attractive exhibits. There is other work worthy and unworthy of note in the entrance corridor, but we must pass onwards in our notice.

M. Jacques Blanche is not inspired in his flower-studies, but the portrait of his mother will secure attention, if only for the good modelling of the head and supporting hand and for the curious (what shall we say?) foreshortening of the figure, making it look dwarfish. Mr. Glyn Philpot has a striking work in "Oedipus and the Sphinx." We will hurry past the terrible "Le Jaguar Noir" by M. Bussy and arrest our steps before Mr. Nelson Dawson's most attractive oil-colour of a "Coble Taking a Line"; here is light, life, atmosphere, and sea-breeze. Mr. Connard's one contribution, "Still-life," cannot fail to draw the public gaze, whether the latter be one of approval or otherwise. Mrs. Mary Raphael contributes one of her Venetian sketches in oils, "San Michele, Murano," and it is one of the exhibits we can regard, and regard again, with pleasure for its pretty colouring and suggestion of local accuracy. Contrast it with Mr. F. G. Brown's "Boxhill," with the colour shovelled on to the canvas—shovelled, but not trowelled.

Mr. Edward Chappel's "Autumn" is rhythmic, and is one of the good exhibits, whose number is all too limited. Mr. Kelly's portraiture is above the average of such work nowadays. Mr. F. C. Frieseke's "Nue sur la Plage" does not appeal to us with its post-impressionistic sky; and if the attractiveness of the naked figure is to be portrayed (as, indeed, why should it not be?), it is a mistake to cast such a parasol-shadow upon it as to give the effect of a close-fitting jersey extending over the hips and the arms. M. D. Edström's plaster and bronze studies hold no appeal to us. It is not often that Aubrey Beardsley's work is now on view, nor for our part is this a source of grief; for, while we can recognise the laboriousness, we experience no sensation of pleasure in inspection. The "Initial V" is the best of the contributions, and "Frontispiece: Volpone," is worthy of notice. Mr. Sydney Lee shows some good colour-prints, "The Church Tower" being exceptionally attractive. Mr. Muhrmann has a clever pastel study of chrysanthemums. Mr. Joseph Pennell, in his Grecian lithographs, is not so satisfactorily represented as usual, but the Sicilian example recalls his better, though not his best, work. The latter is recalled in Mr. Monk's etching of Brooklyn Bridge. Mr. Sullivan's conception of Omar's "Rubaiyat" is not to be commended. What an absurdity to depict a tombstone for Adam and Eve (with inscribed English lettering, too)! Mr. Sullivan will not do after Dulac, for, though he interprets a certain quality of old Omar, it is not the highest or the best, such as Dulac gives us; and there is a lack of reverence (quite in keeping, we admit, with some of Omar's quatrains) in the attestation on the heavenly register illustrating the stanza:—

The moving finger writes, and having writ
Moves on; nor all your piety and wit
Shall lure it back to cancel half a line
Nor all your tears wash out a word of it.

We have not the slightest desire to wash out a word of what we have written here, and might, indeed, have written more, both in praise and dispraise, but must forbear.

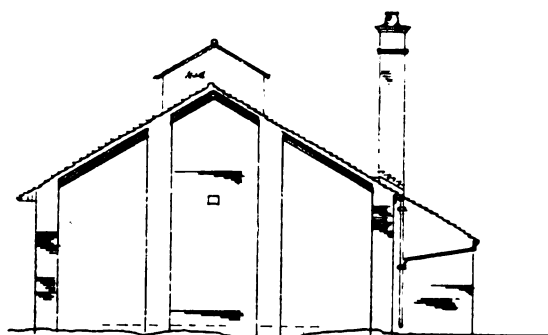
THE ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

AN opportunity occurs at the house of the Royal Photographic Society, 35 Russell Square, London, W.C., of noting the various styles of foreign photographic work. A collection of ninety-six prints by such eminent men as Josef Pecsí, C. J. Brodersen, Albert Gottheil, F. Schensky, Gerald E. Jones, and others is on view from to-day till December 20, free to the public on presentation of visiting card. In most exhibitions of English photographic work landscape subjects predominate; in this collection, however, figure-subjects form a large majority. The landscapes are few in number, and are not particularly striking when compared with English work. There is, however, a very fine collection of marine natural-history subjects taken by flashlight at the Heligoland Marine Aquarium, interesting by reason of the subjects and exhibiting wonderful technical quality in this difficult class of work.

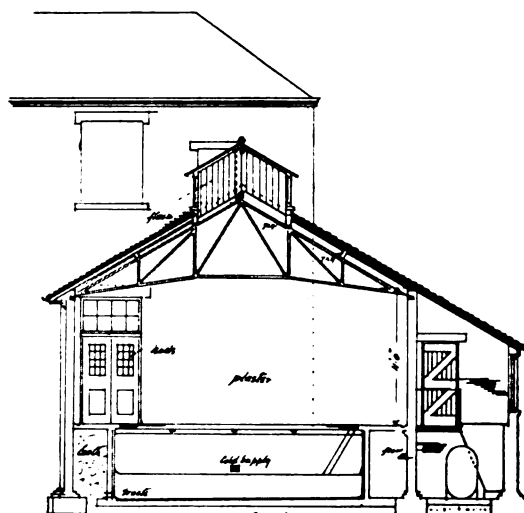
Figure-study is evidently the direction in which the majority of the foreign workers take the greatest interest, and as a result it must be admitted that their work displays a boldness in conception and an artistic treatment in which a great deal of such English work is lacking. The English worker whose taste is in this direction would do well to note the manner in which his Continental confrère deals with ever-recurring difficulties.

ORPHAN ASYLUM GIRLS SWIMMING BATH

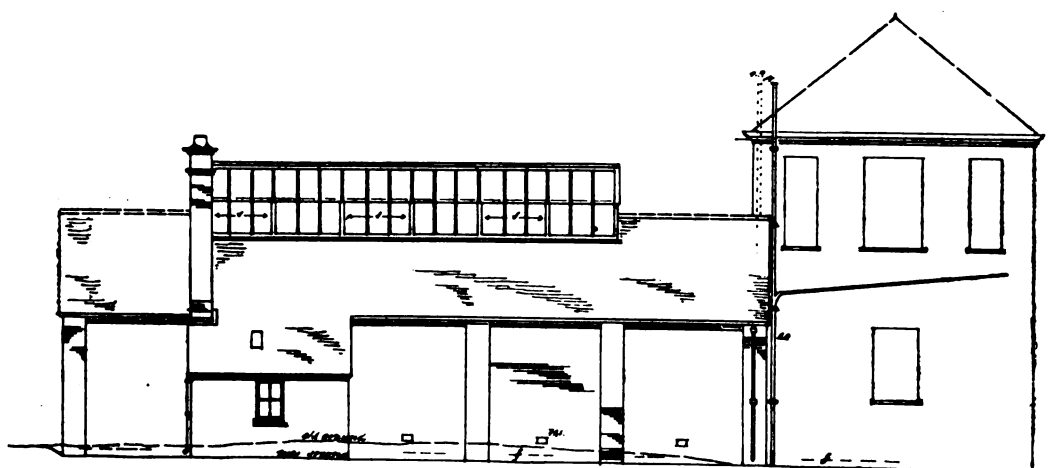
70 5 0 70 20 30 40 50 60 70 Feet



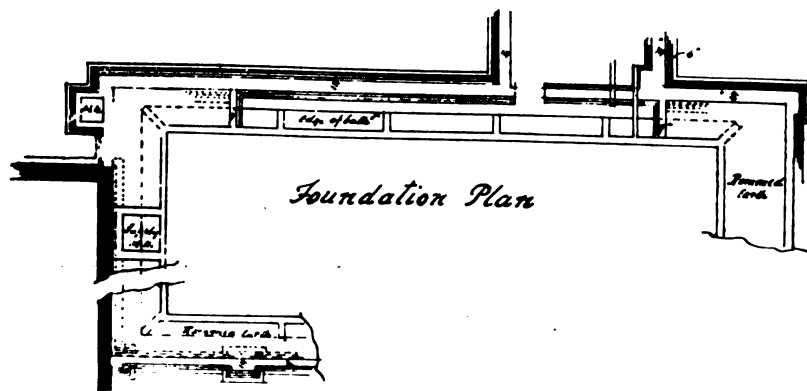
End Elevation



Cross Section

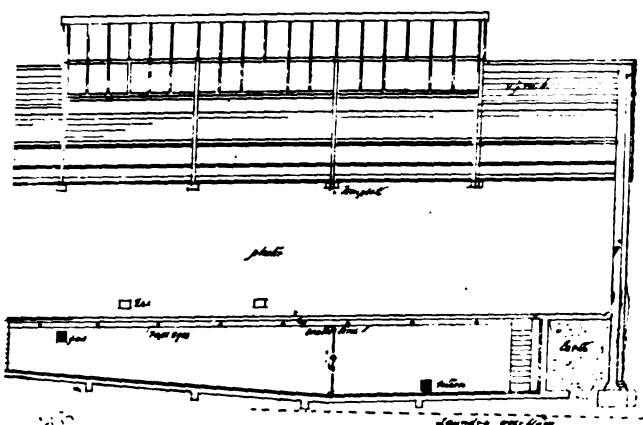


North Elevation

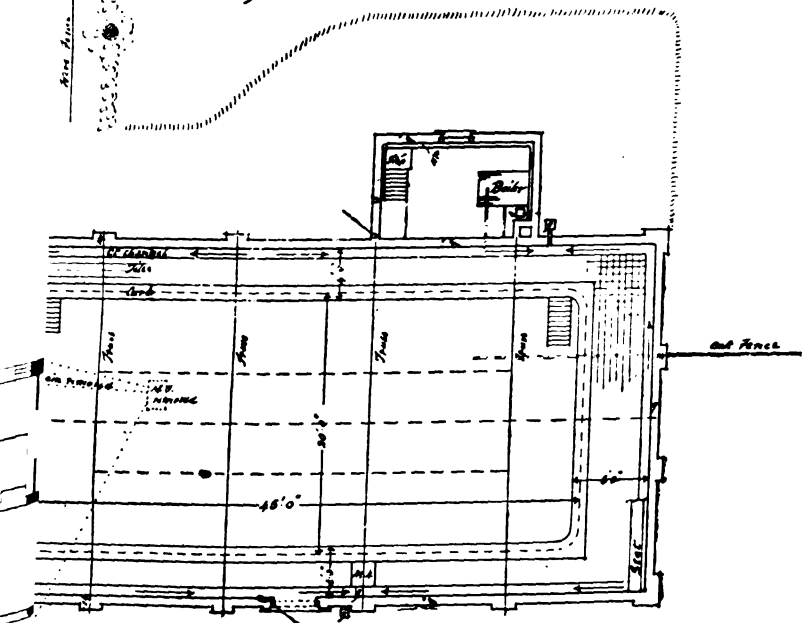


Foundation Plan

MR. ALAN E. MUNBY, M.A., F.R.I.B.A., Architect.



Long Section



Plan.

The contractors for the builders' works were Messrs. J. Darvill & Son, of Watford; for the ferro-concrete bath Messrs. Cubitt & Co.; and for the heating plant Messrs. Rosser & Russell. The whole of the building, including the bath, heating, and drainage, was completed at a cost of slightly less than £1,000, from the designs and under the superintendence of Mr. Alan E. Munby, M.A., F.R.I.B.A.

Mr. G. Salway Nicol submitted the toast of "The Birmingham Building Trades Employers' Association," and in doing so remarked that they often heard criticisms of Birmingham buildings. Some of them might be just and

Country Houses, Bungalows, and Week-end Cottages.

DESIGNS, PLANS, AND
APPROXIMATE COST,
WITH PARTICULARS BY
PROMINENT ARCHITECTS.

Send Postal Order or Stamps for 4/6, and the
11 issues, October 27, November 24, January 26,
February 23, March 29, April 26, May 31,
June 28, July 26, September 27, and October 25,
will be forwarded per return.

LONDON :
P. A. GILBERT WOOD, Publisher,
6-11 Imperial Buildings, Ludgate Circus.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

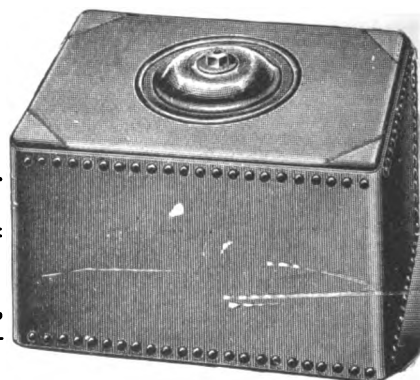
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



**IRON KECS, DRUMS & CANS,
GALV. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**

THE WALL-PAPER MANUFACTURERS LTD. "Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

1 Newman Street, W.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2781 Gerrard.

Telegrams {"Anaglypta, London."
"Anaglypta, Darwen."}

LINCRUSTA-WALTON. CAMEOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 3769 Gerrard.

Telegrams: "Lincrusta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East.

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.



SAVOY HOTEL GARAGE, BOURNEMOUTH.

FITTED WITH KINNEAR PATENT STEEL ROLLING SHUTTERS.
BY ARTHUR L. GIBSON & CO., RADNOR WORKS, TWICKENHAM.

ARTHUR L. GIBSON & CO.

Radnor Works, Strawberry Vale,

TWICKENHAM.

SOLE MANUFACTURERS OF

**Kinnear Patent
Steel Rolling Shutters**

FOR

**TRAMCAR DEPOTS,
GENERATING STATIONS,
BOILER HOUSES,
ENGINE SHEDS,
WAREHOUSES,
GARAGES,
And Entrances Generally.**

MANCHESTER:

33 Arcade Chambers.
St. Mary's Gate.

GLASGOW:

79 West Regent Street.

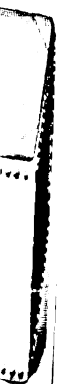
28, 1913

LIMITED

erns

R TANKS

olid Corners



S,
CS, Etc.

TD

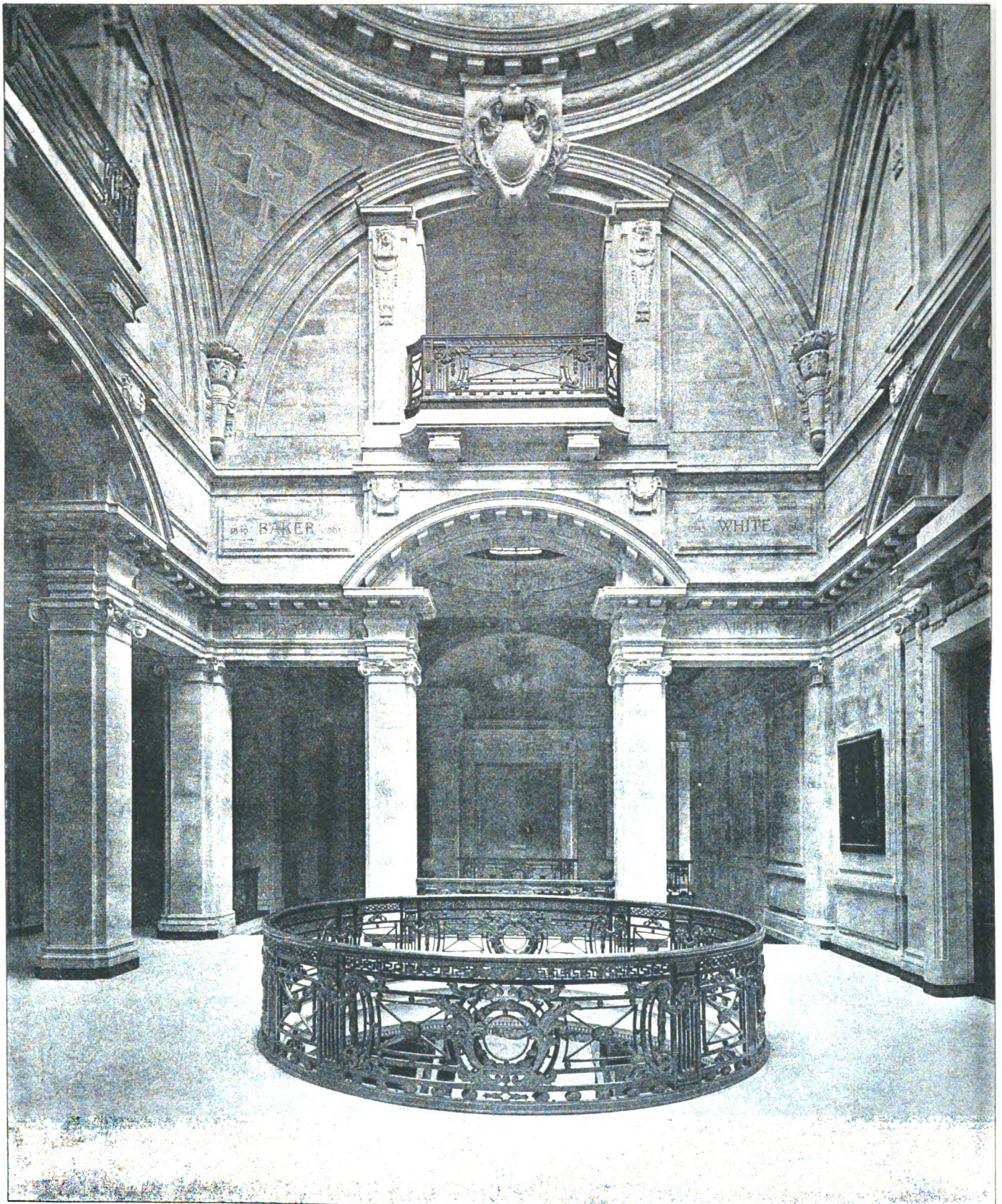
Bo. E.

172

0.

OF

S



PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

INK-PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

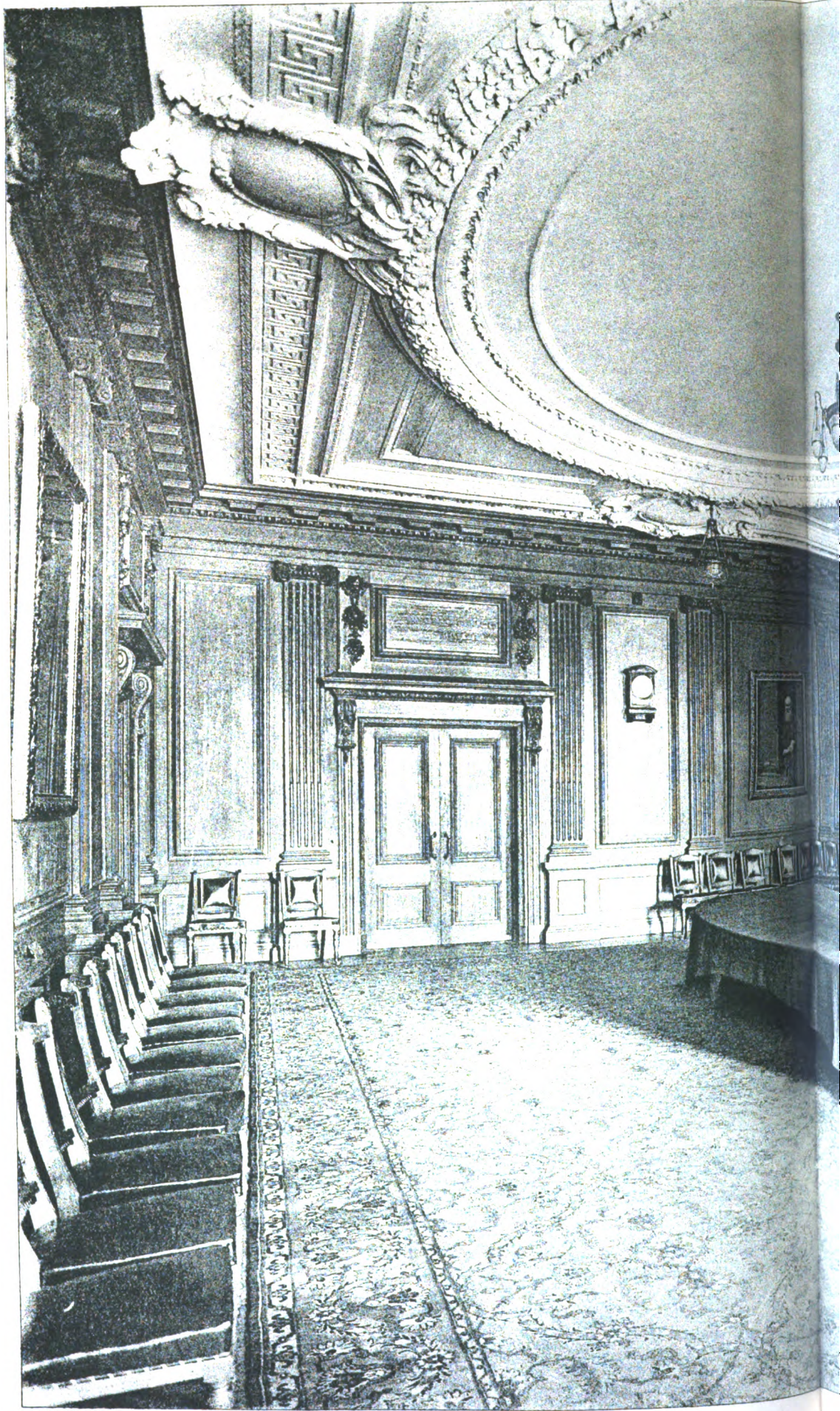
THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—FIRST FLOOR LANDING.
Mr. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.



PHOTOGRAPH BY A. E. WALSHAM, 60 DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

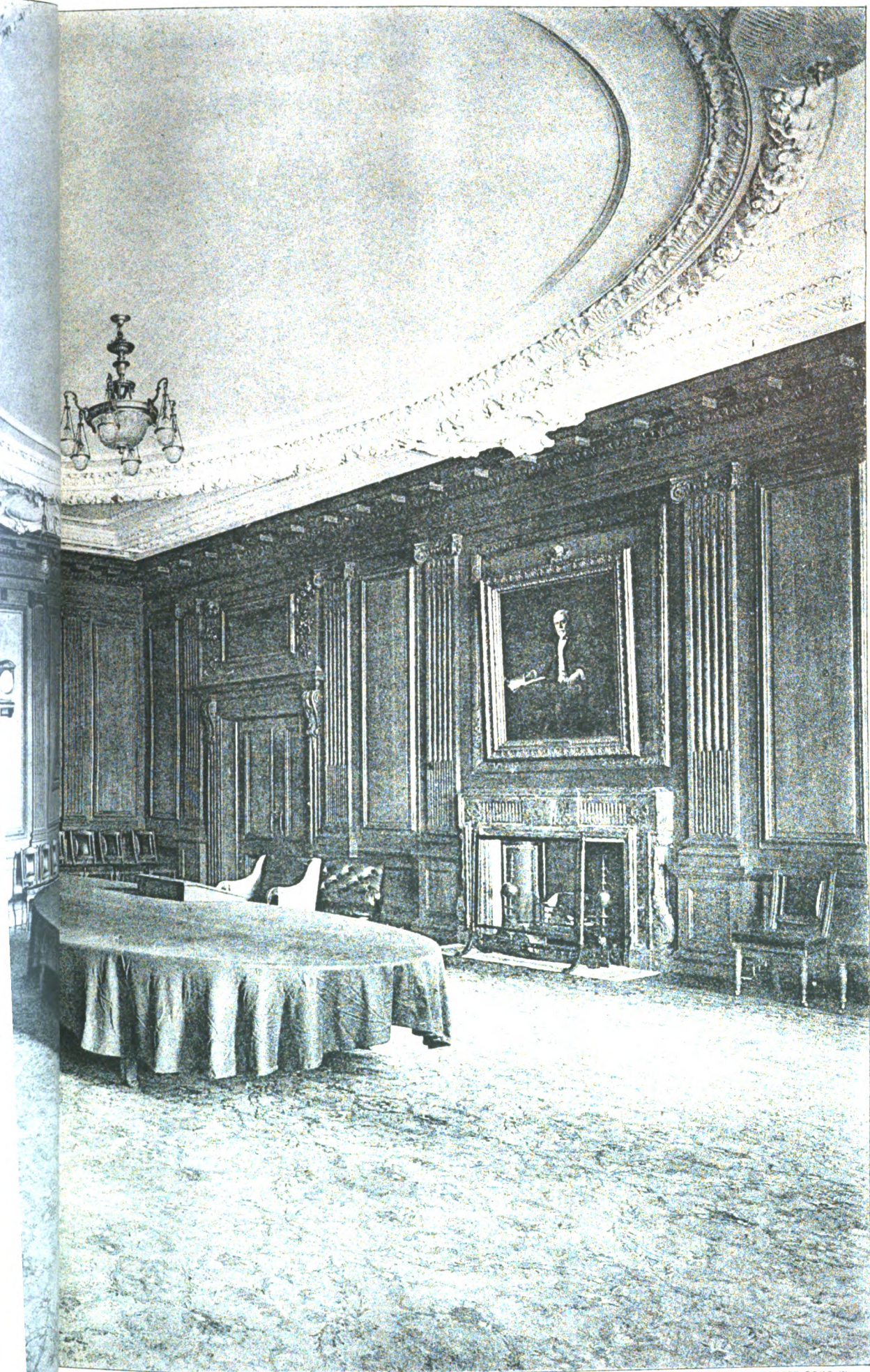
THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—STAIRCASE FROM LANDING.
Mr. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.



PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, LONDON.
Mr. JAMES MILLER

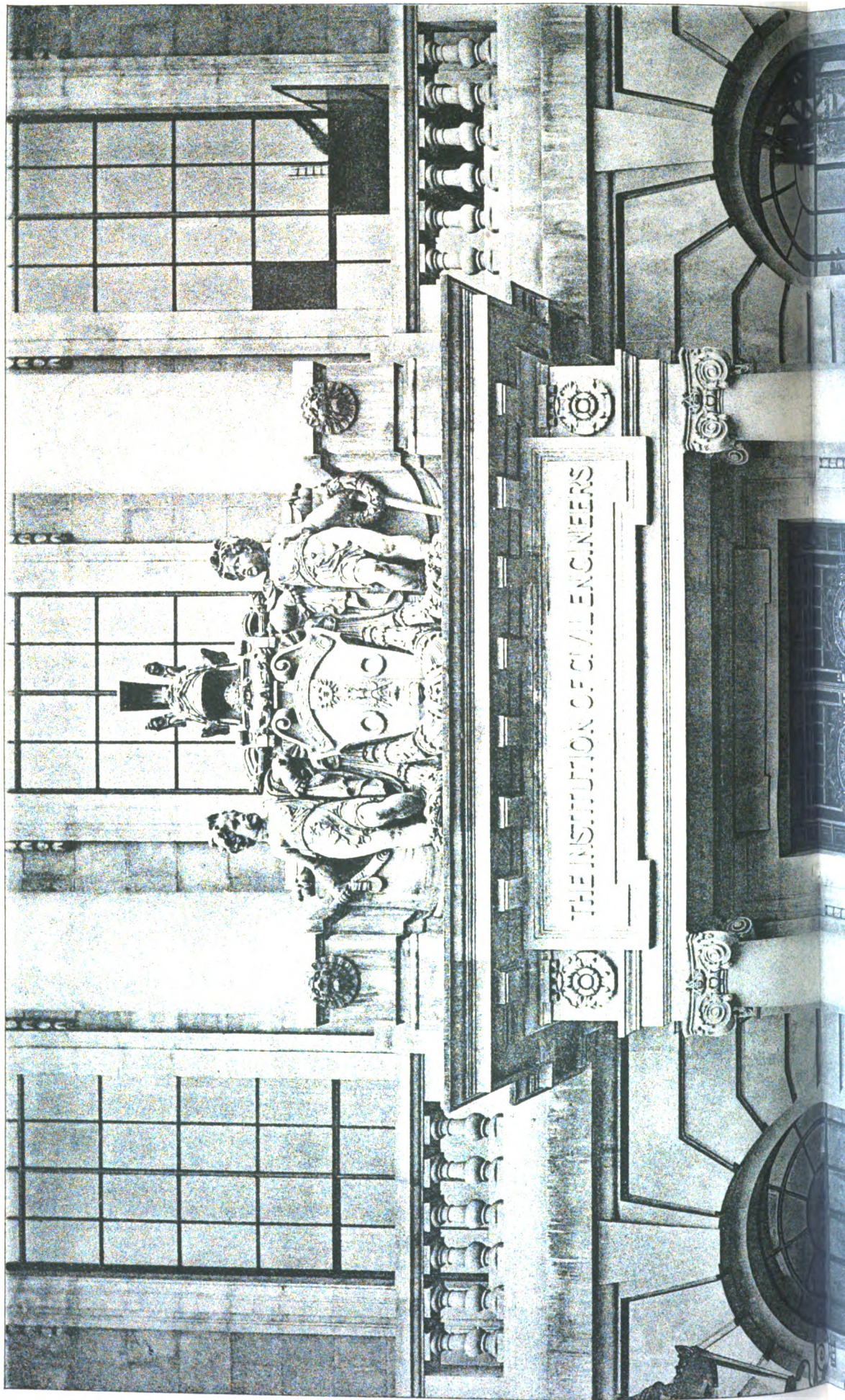
Nov. 28th 1913.

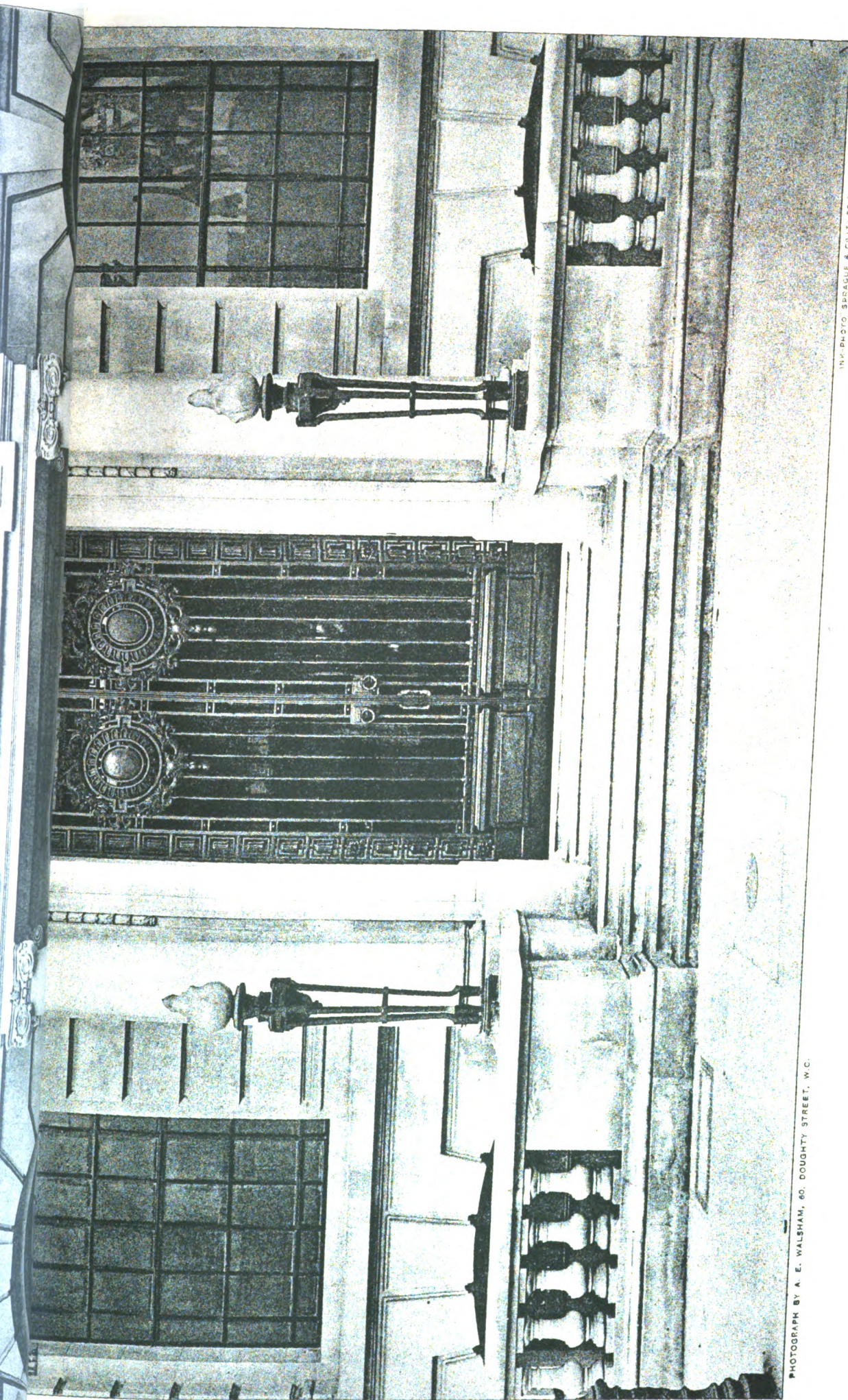


INK-PHOTO SPRAGUE & CO LTD 49 & 70, DEAN STREET, SOHO, W.

GEORGE STREET, WESTMINSTER.—COUNCIL CHAMBER.
VEERS, R., A.R.S.A., F.R.I.B.A., Architect.

The Architect, Nov. 28th 1913.





PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, BOMBO, W.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—DETAIL OF MAIN ENTRANCE.
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.

Y
some
not
any
The
plus
were
sent
(Ap
ther
not
hea
tion
by-l
an!

At
ori
Gu
the
of
2 c
the
the
five
wh
ali
gro
th
ce
E
al
m
m
w
be
ge
n
s
w
le
le
v
in
s

some unjust, but at any rate it was well that they should not be satisfied. They must remember that if there was to be any progress at all there must be some sense of dissatisfaction. They were often referred to the wonderful things accomplished in the past, but they must remember that if they were to produce architecture which was going to reflect present-day civilisation they must be true to themselves. (Applause.) He might say that even in the Middle Ages there were many instances of jerry building which would not be tolerated by the members of the Association. (Hear, hear.)

The President, in a happy response, expressed appreciation of the fair and reasonable manner in which the city by-laws had been administered by the Corporation officials.

Mr. W. Moffat proposed "The National Federation," and the toast was acknowledged by Mr. W. Thomas.

CITY FIRE RISKS.

At an inquiry held at the City Coroner's Court into the origin of a fire at 35 Aldermanbury, E.C., occupied by Messrs. Guiterman & Co., American merchants, and other firms, the Coroner (Dr. Waldo), in summing up, reminded the jury of the dangers to employees and residents of celluloid, some 2 cwt. of which they (the jury) had seen in sheet form in the basement of Messrs. Guiterman. He also reminded them of the fire which had occurred in the same basement five years ago, due to defective electric-lighting installation, whereby unprotected celluloid in sheet form had been set alight, with the resulting burning out of the basement and ground floor of Messrs. Guiterman's. They had also seen the burnt and half-burnt remains of fancy goods made of celluloid lying about on the top storey but one of Messrs. Ernest Hapgood, agents, of 35 and 36 Aldermanbury, set alight by the fire rising from the cupboard by means of the match-boarded goods lift. Mr. Todd had suggested an amendment of the London Building Act of 1894, so as to do away with the use, so common in the City, of dangerous matchboarding of walls, ceilings, lifts, &c. With the experience gained by sitting on twenty bodies, to say nothing of many non-fatal cases (eight of which were girls) sacrificed unnecessarily to unprotected celluloid, he (the Coroner) thought it was about time the Government did something in the way of legislation, registration and licensing of places where celluloid was stored and manufactured.

The jury found that the fire was caused through the inadvertent placing of smouldering matter, probably hot cinders, in a wooden refuse box under stairs. They recommended the substitution of metal coverings for refuse boxes.

THE AGE OF STONE CIRCLES.

THE British Association last year appointed a committee, consisting of Sir C. Hercules Read (chairman), Mr. H. Balfour (secretary), Dr. G. A. Auden, Professor W. Ridgeway, Dr. J. G. Garson, Sir A. J. Evans, Dr. R. Munro, Professor Boyd Dawkins, and Mr. A. L. Lewis, to conduct explorations with the object of ascertaining the age of stone circles. The following report has been drawn up by the Secretary:—

Owing to the smallness of the balance in hand, which only amounted to two guineas, it has not been possible to carry out any work at Avebury during the present year. It was hoped that this sum might be available for re-levelling the inequalities in the ground caused by shrinkage of soil disturbed during previous excavations; but as the levelling will have to be done under skilled supervision the small amount would only suffice if a responsible person were on the spot, and as there was no grant for excavation work there was no suitable expert available. As soon as excavation work can be resumed at Avebury the levelling and repairs can be conducted concurrently with the more important operations and at trifling expense. In view of the scientific results already obtained from the excavations in former years, and as a means of adding to their value in determining the period to which the Avebury stone circle should be assigned, it is most important that fresh explorations should be made in another portion of the earthwork. It is especially desirable that a portion of the fosse to the east of the causeway leading from Kennet Avenue should be excavated down to its original bottom. This is on the opposite side of the causeway to the site of the previous excavations. This important piece of work should either confirm or correct the impressions derived from the sections cut through the fosse on former occasions, and may be expected to lead to definite results provided that a sufficiently large area can be explored. With this object in view,

the committee apply for re-election and for a grant of £50, together with the small balance in hand, which would still be allotted to the repairing of damage caused by previous excavations. The committee also wish to apply for leave to invite subscriptions from other sources, in order to acquire a sum sufficient for moderately extensive investigation. Owing to the great depth of the silting in the fosse, the cost of excavation is relatively high, and the grant applied for would by itself only be sufficient for a very limited exploration of the fosse; but if the grant is allotted, a further sum will be available from private sources, enabling the work to be conducted on a more substantial scale, with every prospect of valuable results. It is important that excavations should be renewed at Avebury next spring if possible, and not be delayed for another year, as there would be a better chance of enlisting the services of labourers who have already been employed in this work and have learned something of the requirements.

The committee desire to express their deep regret at the death of Lord Avebury, who had not only served upon the committee for several years, but had also freely given permission for excavations to be made in those portions of Avebury stone circle and earthworks which were his own property. He was deeply interested in the work, and was anxious that it should be carried out in a thorough manner, so as to yield results which might solve finally the problem of the age of this splendid monument.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Bierton.—Voluntary School: improvement.

Chesham.—Twenty working-men's dwellings, Brockhurst Road (£3,550).

Slough.—Council School, Chalvey (£5,800).

Wendover.—Houses, above Bacombe Terrace, for Mr. P. J. Clarke (of Aylesbury Street).

Houses, above Bacombe Terrace, for Mr. Wright (of Great Missenden).

CAMBRIDGESHIRE.

Whittlesey.—Picture Palace, Market Street, for Mr. F. Hart.

CHESHIRE.

Macclesfield.—Workhouse Hospital: extensions to hospital and completion of nurses' home (£590).

New Brighton.—Theatre (for over 1,000 seatings), for Messrs. Clifford & Johnstone (of York).

CORNWALL.

Newquay.—Workmen's dwellings (£3,600).

CUMBERLAND.

Carlisle.—Picture Palace and restaurant, English Street, for the London and Provincial Cinematograph Co.

DERBYSHIRE.

Eckington.—Picture Palace, for Mr. Frank Poile.

DEVON.

Dartmouth.—Council School, Higher Victoria Road.

Devonport.—Hospital: extensions.

Exeter.—Twelve Council cottages, Blackboy Road. City surveyor.

Okehampton.—Proposed Nursing Home (£1,000).

DURHAM.

Darlington.—St. Luke's Church: first portion (£4,000).

Fishburn.—One hundred and thirteen houses, per Mr. Mr. H. E. Pitt.

Three houses, per Mr. W. S. Reed.

New Penshaw.—Seventy-nine houses, for the Lambton and Hetton Collieries, Ltd. Mr. J. Palliser, architect to the Colliery Co.

Sedgefield (near).—Nine houses, Deanbank, for the Bishop Auckland Co-operative Society.

Institute, Windlestone Colliery, for Messrs. Pease & Partners.

Usworth.—Fifty-seven working-class houses, for Chester-le-Street R.D.C.

ESSEX.

Hornchurch.—Picture Palace, Station Lane, for the Hornchurch Cinema, Ltd. Mr. R. Living, architect.

Shoebury.—Rochford Hundred Education Offices, Richmond Avenue.

West Ham.—Buildings at highways depot (£3,700).

Orr's Zinc White Limited

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.

ZINC SULPHIDE WHITE (Original Patentees).

PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSEL

ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

CLARIDGE'S PATENT ASPHALTE CO., Ltd.

21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."

ENGLAND—continued.

GLOUCESTERSHIRE.

Bristol.—Business premises, Bridge Street. Messrs. Foster-Wood & Awdry, F.R.I.B.A., architects, 35 Park Street.

ISLE OF WIGHT.

Ventnor.—Cottage Hospital.

KENT.

Beckenham.—Liberal Clubhouse: rebuilding. Mr. W. J. Pamphilon, architect, Tweedy Road, Bromley.

LANCASHIRE.

Blackpool.—"Clifton Arms" Hotel: extension, &c.

Burnley.—Elementary Schools, Lionel and Cuthbert Streets.

Liverpool.—St. Anne's School, Stanley: additional 250 places.

LINCOLNSHIRE.

Lincoln.—Wesleyan Methodist School-chapel, Walmer Street (£2,000). Mr. A. Brocklehurst, architect, 30 Brown Street, Manchester. Messrs. W. Wright & Son, Ltd., contractors, Park Street.

MONMOUTHSHIRE.

Newbridge.—Constitutional Clubhouse: additions and alterations. Messrs. Jenkins, James & Co., architects.

Tredegar.—Fifty workmen's houses. Mr. W. E. Jones, architect.

NORFOLK.

Norwich.—Sixteen working-class houses (£4,000). Mr. Collins, City engineer.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Municipal dwellings, City Road.

SOMERSET.

Chard.—Drill Hall, &c., for the H Company 5th Batt. Somerset Light Infantry.

STAFFORDSHIRE.

Burton-on-Trent.—Blouse-making factory (for 400 to 500 hands), for Mr. Howarth (of Manchester).

Stoke-upon-Trent.—Children's Hospital (£5,600) and Nurses' Home extension (£1,500), for the Board of Guardians.

SURREY.

Godalming.—Church Room, Queen Street (£1,200).

Kingston.—Wesleyan Church, Eden Street: proposed new Lecture Hall.

Sheen.—Council School.

Shottermill.—Public Elementary School.

SUSSEX.

Horsham.—Council School, Oxford Road. Secondary School.

Midhurst.—Grammar School: additions and alterations (£2,000).

WORCESTERSHIRE.

Broadway.—Council mixed and infants' school for 282 places (£3,000).

Bromsgrove.—Council School: alterations.

Dudley.—Extension of premises, Coombe Wood, for Messrs. Stewart & Lloyds. Mr. A. T. Butler, F.R.I.B.A., architect, 31 Priory Street.

Malvern.—C.E. School: enlargement.

Redditch.—Working-class dwellings (£6,850), for the U.D.C.

Worcester.—Newtown Hospital: alterations (£2,800).

YORKSHIRE.

Brighouse.—St. John's Church, Rastrick: first portion (£500).

Deurbury.—Wheelwright Grammar School: extension for girls (£7,000 to £8,000).

Doncaster.—Salvation Army Hall, Cleveland Street (£3,000).

Halifax.—St. Hilda's Church: vicarage (£1,900).

Leeds.—Picture House, Brudenell and Queen's Roads. Messrs. T. Winn & Sons, architects, 84 Albion Street.

Menston.—Isolation Hospital: extension (£3,000).

Merborough.—Public Baths (£5,750), for the U.D.C.

Redcar.—Parish Church (£9,000).

Sowerby Bridge.—Catholic Church.

Thurstone.—P.M. Church. Mr. J. Broadbent (of Shepley), contractor (£1,000).

Whitby.—Two villas, Runswick Bank Top. Mr. A. E. Young, architect, 77 Baxtergate.

WALES.

Brithdir.—Council School. Mr. D. Pugh-Jones, F.S.I., County architect, County Hall, Cardiff. Messrs. Hamilton & Millard, contractors, Salop Street, Caerphilly (£4,600).

Holyhead.—Prince of Wales Sailors' Institute, Waltham Avenue. Messrs. J. Owen (F.R.I.B.A.) & Thomas, architects, Exchange Chambers.

Llandaff.—Howell's Glamorgan County School: additions. Mr. G. E. Halliday, F.R.I.B.A., architect, 19 Castle Street, Cardiff.

Llansamlet.—House, Nantyn Road, for Mr. W. Benjamin.

Morriston.—House, Pentrepoeth Road, for Councillor D. Matthews.

House, Morfydd Street, for Mr. D. O. Thomas.

Neath.—Hope United Methodist Church and Schools, Lewis Road. Messrs. John Wills & Sons, architects, Victoria Chambers, St. Peter's Churchyard, Derby. Messrs. Waring, Gale & Waring, contractors, Rope-walk.

Port Talbot.—Forward Movement Hall, The Sandhills. Aberavon. Mr. F. B. Smith, architect, St. Oswald's Chambers. Mr. J. Vaughan, contractor, 18 Grange Street (£1,797).

Swansea.—Two houses, Sketty Avenue, for Mr. A. Thomas.

House, Millwood Street, Manselton, for Mr. T. Richards.

Three houses, Bernard Street, for Mr. A. J. Marles. *Ystradmynach*.—Boys' Council School. Mr. Jones (see "Brithdir" above), architect. Mr. J. Makin, contractor, 207 Mackintosh Place, Cardiff (£5,941).

SCOTLAND.

Ayr.—Public Baths. Burgh surveyor.

Edinburgh.—Premises, East Register Street and St. James Square: reconstruction, for the Sailors' and Soldiers' Home Trustees.

Falkirk.—Picture House and shops, High and Newmarket Streets (£3,000), for Falkirk Picture House, Ltd.

Greenock.—Two hundred workmen's houses, Roxburgh Street.

Peterhead.—St. Peter's Episcopal Church: chapel in rear.

Wishaw.—Burgh Hospital: extensions (£3,000).

IRELAND.

Athy.—Thirty-six working-class cottages (£7,000).

Ballaghaderreen.—Seminary for the Diocese of Achonry. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street, Dublin. Mr. J. Kiernan, contractor, 8 N. Richmond Street, Dublin.

Belfast.—Working-class dwellings. Messrs. Chillingsworth & Levie, architects, 11 South Mall, Cork.

Dublin.—Carnegie Library, Ball's Bridge.

Municipal Offices, Lord Edward Street (£55,000). Messrs. McDonnell (M.R.I.A.I.) & Reid, architects, 20 Ely Place.

Dungannon.—Twenty labourers' cottages (£3,400).

Ennis.—Clare Central Tuberculosis Dispensary. Mr. W. H. Allen, C.E., architect, The Terrace.

Enniskillen.—Parochial Hall (£1,500).

Moira.—Sixty-eight labourers' cottages (£16,320).

PATENT SPECIFICATIONS PUBLISHED
NOVEMBER 20, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 24,586. Oct. 28, 1912.—Simplex Conduits, Ltd., and F. G. Taylor, both of Garrison Lane, Birmingham. Electric oven.

24,743. Oct. 28, 1912.—H. A. Hamilton, Thomas Street, Waterford. Holder or fastening for use in connection with the sliding sashes of window frames.

24,767. Oct. 29, 1912.—P. A. Morgan, 173 Preston Drove, Brighton. Sash fasteners.

25,070. Nov. 1, 1912.—Guiseppe Restucci, 156 Corso Garibaldi, Naples. Sash window opening and closing device.

27,842. Dec. 3, 1912.—Burt & Potts, Ltd., 63 York Street, Westminster, S.W., and H. E. Pott, 75 Durham Road, West Wimbledon. Stays for casement windows.

28,011. Dec. 5, 1912.—John Newey, 52 Dennis Road, Sparkbrook, Birmingham. Fire grates.

28,800.—Dec. 14, 1912.—W. V. Kell, Bridge Street, Broad Street, Birmingham, and H. E. Grigg, 27 Thynne Street, West Bromwich. Hopper windows.

28,804. Dec. 14, 1912.—W. V. Kell, Bridge Street, Broad Street, Birmingham, and C. L. Dagley, 154 Sabell Road, Smethwick, Birmingham. Collapsible gates.

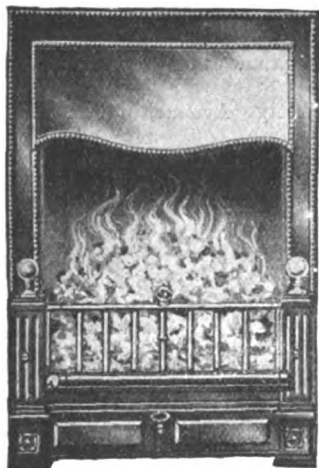
THE LATEST DEVELOPMENT OF Scientific & Practical Warming

IS EMBODIED IN "PRIOR'S PATENT"

"IMPERIAL"

CONVERTIBLE FIREGRATE

A Grate that can be used as a



The front bars are raised for VERY COLD WEATHER.

INSTANTLY
CHANGED to

A BARLESS or HEARTH FIRE

is the most suitable for mild or cool weather, as it is the best form for slow combustion but has

ONLY ONE HEATING SURFACE—THE TOP.

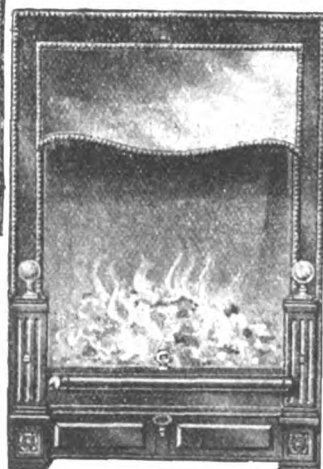
A Firegrate with Suitable Front Bars

is the best for very cold weather, the fire having **TWO HEATING SURFACES**—THE FRONT and the TOP. The front fire is a good floor warmer and heats the distant parts of the room.



The front bars are partially raised for COLD WEATHER.

INSTANTLY
CHANGED to



Used as a Barless or Hearth Fire for MILD WEATHER.

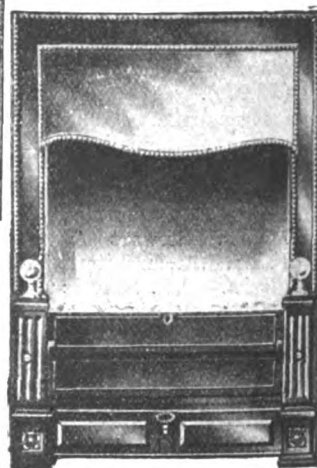
INSTANTLY
CHANGED to

BARLESS or HEARTH FIRE
(FOR MILD WEATHER)

or Instantly Changed to a

FRONT BAR FIRE
(FOR COLD WEATHER)

THE HEAT CONTROLLERS
regulate the Heat of the room
as easily as turning a tap.



The heat controllers are raised and the fire **SMOULDERS UNTIL REQUIRED.**

REGULATING THE HEAT OF THE ROOM. By opening or closing the Automatic Draught Doors the speed at which the fire burns is under perfect control.

HEAT CONTROLLERS. By raising these, the fire will smoulder for many hours without attention, and is specially useful for shutting in the fire at night, or in the day-time when the room is not in use.

**THE MOST POWERFUL HEATER
THE MOST ECONOMICAL IN FUEL**

PRICE
FROM

£2 7s. 6d.

Special Book "B," illustrating in Colours the Numerous Different Designs of the "IMPERIAL" FIREGRATE sent Post Free on application to the Patentee and Sole Manufacturer,

James D. Prior, Empire Works, Holliday Street, Birmingham

28,696. Dec. 13, 1912.—John Hart, 66 Parade, Birmingham. Acetylene gas generators.

1,369. July 17, 1913.—Geo. Melville, The Eyrie, 50 John Street, Penicuik, Mid-Lothian, N.B. Grate or fireplace.

1,531. Jan. 20, 1913.—James Smith, 103 Rosebery Street, Glasgow. Syphon flushing cisterns.

2,187. Jan. 27, 1913.—Dated under International Convention Feb. 8, 1912. Carl Roth, Sommerringstr 30, Frankfurt a/Main. Coating and impregnating materials.

2,290. Jan. 28, 1913.—Benjamin Day, 118 East 28th Street, New York. Film frame apparatus for shading the surfaces of drawings, stones, and the like.

2,355. Jan. 29, 1913.—Harry & Frank Skelton, 175 Great Dover Street, E.C. Means for operating the gates to the well openings of lifts.

5,383. March 4, 1913.—Planet Foundry Co., Ltd., and James Learmouth, Planet Foundry, Audenshaw, Manchester. Adjustable grate fronts for domestic fireplaces.

5,828. March 8, 1913. Educational Supply Association, Ltd., 42 Holborn Viaduct, E.C., Herbert Wooland, Bowes Cottage, 60 Walkern Road, Stevenage, Herts, and J. H. F. Lodge, 92 Balham Grove, Balham. Sliding and folding partitions and doors.

10,985. May 9, 1913.—Dr. Fulop Katona, Gizella-ut 38, Budapest VII. Brick walls.

11,182. May 13, 1913.—J. T. Tussaud, The Hawthornes, Croxley Green, Hertfordshire. Modelling clay.

17,569. July 31, 1913.—Harry Evershed, Salford Priors, near Evesham, Warwickshire. Land and levelling appliances.

21,668. Sept. 25, 1912.—Gustav Schlosser, Dusseldorf-Holthausen, Germany. Hoists or lifts for conveying loads.

22,060. Sept. 30, 1913.—Dated under International Convention Oct. 1, 1912. Karl Hirsch, 18 Gartenstr, Neuhagen a Ostbahn, and Franz Blume, 4 Plantagenstr, Berlin-Steglitz, Germany. Safety lock or retaining device for doors.

28,608. Dec. 12, 1912.—William Fulton, 33 Mikasa Street, Vickerstown, Barrow-in-Furness. Scaffolding or staging.

29,211. Dec. 19, 1912.—T. A. Vanston, 102 Arkwright Street, Bolton. Devices for cutting pipes or tubes.

29,845. Dec. 27, 1912.—W. J. Ayles, Broughton, Stockbridge, Hants. Construction of hollow walls.

657. Jan. 9, 1913.—W. E. Rhodes, High Street, and A. G. Harris, Heywood Green, Cinderford, Glos. Pumps for water and other liquids.

815. Jan. 10, 1913.—Henry Hawgood, 32 Fairlawn Grove, Acton Lane, Chiswick. Skylight openings.

1,691. Jan. 21, 1913.—William Matthews, 151 Bryngelly Terrace, and David Matthews, Penlan Road, Treboeth, near Swansea. Coppers or boiling pans.

2,035. Jan. 25, 1913.—H. O. Strong and The Omega Odourless Gas Stove Co., Ltd., of 9 Cave Street, St. Paul's, Bristol. Heat-diffusing and non-conducting chamber for gas heaters.

3,713. Feb. 13, 1913.—Albert Swallow, 72 Brudenell Road, Leeds. Portable platforms or stagings for use with ladders for fixing spouting to buildings, or for painting buildings or like purposes.

5,471. March 4, 1913.—Samuel Thompson & Co. (Millfields), Ltd., and J. J. Walton, Millfields Works, near Wolverhampton. Flushing cisterns.

7,677. April 1, 1913.—Thomas Potterton, Cavendish Works, Balham. Hot-water apparatus.

8,760. April 14, 1913.—L. C. Norton, 904 West Lake Street, Chicago. Combined door stop and door holder.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Statutory Registration of Architects.

SIR,—For nearly thirty years the Society of Architects have promulgated and pioneered a movement for the statutory registration of architects, and have from time to time promoted a Bill in Parliament, on lines which provide for the protection of all present vested interests, for the attainment of that object.

For the past two years or so the Society have temporarily suspended their activities in this direction for

reasons which, I think, have been generally appreciated; but in view of recent developments they have decided to take immediate further action.

The Society's draft Registration Bill, which has been in the meantime revised and brought up to date, has been placed in the hands of an eminent counsel for completion, and all arrangements made for again introducing the Bill into Parliament at the first opportunity.

The Society invite the support of all architects who favour the principle of Statutory Registration.—Yours faithfully,

G. E. BOND,
Chairman of the Registration Committee
of the Society of Architects.

November 22, 1913.

Registration of Architects in New Zealand.

SIR,—With further reference to my letter of September 1, 1913, I have this morning received a cable from the New Zealand Institute of Architects to the effect that the Registration Bill has passed. The brief history of its Parliamentary progress is that just a year ago it was introduced into the House by the Hon. Mr. Herdman, the Attorney-General, and was read a first time. It passed the second reading in July, and was referred to a Special Committee of the House, and it has now become law.—Yours faithfully,

C. McARTHUR BUTLER,

Nov. 24, 1913.

Secretary.

Flat Concrete Roofs.

SIR,—In your issue of the 14th inst. Mr. Thomas Potter remarks that the Government Departmental Committee for the investigation of the building of cheap cottages say "a layer of bituminous material between the floor boards and concrete is necessary."

I quite agree with Mr. Potter that unless the subsoil is damp this is not necessary. From what I remember of the report I think it was more of a suggestion than an actual rule which they laid down.

Mr. Potter says that flat roofs are liable to crack owing to the change of temperature unless there is some means of controlling the change of temperature.

In my book I recommend joints to be laid in large cement roofs, the work to be done in sections, the joints to be filled with hot bitumen; but the Swansea Corporation had a range of "Pudloed" flat roofs done over five years ago, and these have not leaked up to the present time, and there is no expansion joint in these. Five years is a fairly long test.

I can point to many dozens of flat roofs which have been done with "Pudloed" cement, all of which are perfectly watertight. There is another advantage which "Pudloed" cement has in varying temperatures, and that is the repelling action against frost. I have sent out to Winnipeg forty-four tons this year for the new reservoir there, and Professor Brydone-Jack, of the Manitoba University, was chosen to test my powder along with about a dozen other methods of waterproofing reservoir, and he came to the conclusion that "Pudlo" was best because it stood every climatic condition which occurs in Canada better than any other method. The first indication I had was the order that was cabled to me for the material, so this is a very unbiassed opinion.

Some of my customers have tried "Pudloed" cement for pointing in the winter during very heavy frosts, and speak well of it. They say that whereas non-Pudloed cement has dropped out of the joints, the Pudloed cement has always remained intact.

If I had reason to fear the cracking of a roof, I should advise coke breeze or shingle on the top of the cement flat. Coke breeze is very light, and a very coarse mixture of breeze, cement, and sand would make a porous but binding concrete and a very good floor. I have known this to be done with very good results.

Mr. Potter was the first man in England to seriously adopt concrete as a constructional material. That was before I was born, so that he is now an old man. Since the publication of his well-known book on "Concrete" he has been termed "The father of concrete."—Yours faithfully,

J. H. KERNER-GREENWOOD.

November 26, 1913.

THE Birmingham Education Committee are recommended to proceed with the purchase of a site for a new school to serve Saltley and Washwood Heath. The building, it is estimated, would cost about £15,000.

**MOTOR TRACTION
MEANS—MORE—TRADE.**

Why not Buy the Best?

**THE FOUR BEST
COMMERCIAL CHASSIS**

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Carcarsold, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e. Wood-Milne Steelrubber—other makes to order.*

**Stained Glass
Windows &
Leaded Glazing**



Specially designed in old Colourings, to include Armorial Bearings, &c., if desired.

Estimates and designs submitted free for all kinds of work, together with testimonials showing that work of highest grade may be relied upon.

Andrew Stoddart

The Studio 7 Castle Rd.,
Telephone: No. 261 V. Nottingham.

(3)



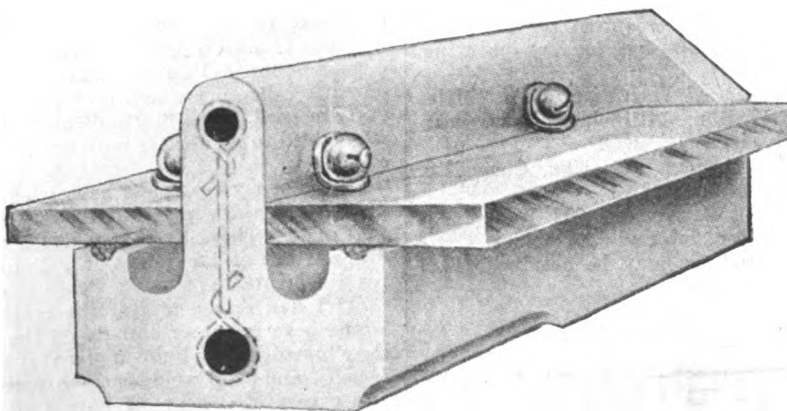
The principal feature of the **CHAMPION CHIMNEY POT** is its magnificent updraft.

For many years the "Champion" has been specified by **LEADING ARCHITECTS** and has sold in large numbers. Architects speak highly of its **SMOKE-CURING** and **VENTILATION** qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to **The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.**

**THE
Universal Concrete & Construction Co. Ltd.**
PATENT FERRO STONE GLAZING.

IMPROVES WITH
AGE.



QUICK DELIVERY
ASSURED.

Beautiful in Appearance. 25 per cent. Lighter than other Glazing. Fireproof. Acid Fume Proof. Reflects the Light. Economical. Everlasting.

Designs and Estimates Free on Application.

20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 VICTORIA.

The Architect.

CONTENTS.

	PAGE
Colour Decoration in Architecture	517
Notes and Comments	518
Modern-Antique Furniture (illustrations) 519, 21, 3, 5, 7, 9, 31-3	31-3
"The Architect" Students' Sketching and Measuring Club	520
Competition News	520
Illustrations :—	
Modern-Antique Furniture	520
The Architectural Association	521
Mediaeval Walled Cities	523
The Corrosion and Rusting of Iron	526
English Neo-Classic Architecture	529
House Drainage Law	531
Mary Curzon Hostel for Women	533
Mr. Lewis Baumer's Art	533
Building Progress in the Provinces	535
British Patent Specifications	537
Correspondence	537

FORTHCOMING EVENTS.

Monday, December 8.

- Architectural Association: Paper entitled "Portuguese Architecture," by Mr. W. H. Ward, M.A., A.R.I.B.A., at 8 p.m.
 Liverpool Architectural Society: Paper entitled "Originality in Classical Architecture," by Mr. Lionel B. Budden, M.A., A.R.I.B.A., at 6 p.m.

Tuesday, December 9.

- Royal Sanitary Institute: Paper entitled "The Progress of School Hygiene," by Dr. James Kerr, M.A., M.D., D.P.H., at 7.30 p.m.
 Royal Society of Antiquaries of Ireland: Meeting at 8.15 p.m.

Wednesday, December 10.

- Manchester Society of Architects: Paper entitled "Some Aspects of Greek Architecture," by Mr. Theodore Fyfe, F.R.I.B.A., at 6.30 p.m.
 Northern Architectural Association: Paper entitled "French Architecture in the Eighteenth Century," by Mr. W. H. Ward, M.A., A.R.I.B.A., at 7.30 p.m.

Thursday, December 11.

- Society of Architects: Paper entitled "Courage in Colour," by Mr. R. Goulburn Lovell, A.R.I.B.A., at 8 p.m.
 Leeds and Yorkshire Architectural Society: Paper entitled "A Holiday in the Val d'Aosta," by Mr. T. Edgar Eccles, F.R.I.B.A., at 6.30 p.m.
 Sheffield Society of Architects and Surveyors: Paper entitled "The Architectural Aspect of Town Planning," by Mr. Patrick Abercrombie, M.A., at 7.30 p.m.
 Concrete Institute: Paper entitled "Some Fallacies in Testing Cement," by Mr. Laurence Gadd, F.I.C., at 7.30 p.m.

COLOUR DECORATION OF ARCHITECTURE.

WE cannot escape the hope that there is a foundation of truth in a story that we have read in the *Daily Mail* relating to the change of method in the work of the pavement artist, who, we are told, exhibits in a by-street of Belgravia and, up to the present, has always worked in black and white, with an occasional touch of grey for backgrounds. Recently, however, regular passers-by have noticed with surprise vivid splashes of colour in the centre of his gallery and on his diploma flags. The explanation given by the writer is that this change of method is due to the influence of M. Leon Bakst, who designed the costumes and scenery for the Russian Ballet, and has also devised the costumes and colour schemes for the new revue at the London Hippodrome. The suggestion is that a desire for colour is now influencing the pavement artist's clients, and that the reflection of this desire is shown by the work of M. Bakst.

We may, therefore, hope, if such be the fact, that, as architecture always necessarily reflects the spirit of the age, despite the vituperations of acrimonious critics, we may once again find architecture rescued from the monotonous absence of colour which has characterised modern work from the time of the churchwarden period throughout the nineteenth century. In all the great periods of art there was certainly the keenest delight in colour. It is perhaps difficult for the public to believe that the Parthenon and other Greek temples, and also all of our old cathedrals, were at one time highly coloured, but they certainly were so shortly after they were built. The modern prejudice against the use of colour in architecture commenced about the same time that sculpture also became, like painting, an independent art, at the end of the sixteenth century, and no longer existed as a companion and colleague of architecture.

We may therefore be inclined to believe that the synchronism of M. Leon Bakst, the *Daily Mail* pavement artist, and the appearance of a new book* on architectural colour decoration may all be indications

of the revival of colour in architecture. Mr. Ward advocates that the colouring of the exteriors of important buildings should be, if possible, effected by the use of the constructive materials such as stone, marble, granite, and coloured terra-cotta, in conjunction with panels and friezes, &c., of enamelled tiles or mosaic, and, even in the case of less pretentious buildings, a good deal might be done by ordinary painting. The use of such coloured materials, he urges, would not be more expensive than the grey drab and white stone and marble which are now used so much for exterior elevations. As examples of what has been done in the past on buildings which still remain to us we are reminded of the many buildings in Italy in which simple external structural colour is obtained by the use of red brick, stone dressings, grey-blue terra-cotta, or tiles and mosaic, but beyond these there are also examples of still more brilliant colouring, as in the front of the Doge's Palace at Venice and the Ca' d'Oro in the same city. It cannot be said that colour decoration of the exterior of buildings is appropriate only for Southern lands where the sky is clear and the light is bright, for in Germany, including under that term—on a geographical basis rather than a political one—the whole of central Europe, exterior colour painting and decoration have always found great favour even up to the present time.

The book which we have before us is of interest because Mr. Ward has combined therein a historical account of what has been done in the past, with advice and teaching on the treatment of colour schemes and their use in the present. Amongst the foremost of his hints is the necessity of clearly distinguishing between the two kinds of harmony which may be made to exist in colour schemes—the harmony of analogy, or closely related colour tones, and the harmony of contrast in colour. The modern Philistine usually leaves to his womenkind the determination of colour schemes of his home, and the modern woman appears to be entirely obsessed with the harmony of analogy, so that when she is deciding upon the painting of the woodwork of a room she selects from amongst the colours that may appear on the wallpaper some one or other, without much thought as to the balance that may be maintained or upset in the general colour scheme. There is no doubt that the harmony of analogy is far easier to achieve than the harmony of contrast. On the other hand, it is only by the latter that the finest and richest

* *Colour Decoration of Architecture. Treating on Colour and Decoration of the Interiors and Exteriors of Buildings. With historical notices of the art and practice of colour decoration in Italy, France, Germany, and England. For the use of decorators and students. By James Ward, author of "Principles of Ornament," "Historic Ornament," "Colour Harmony and Contrast," "Progressive Design," "Fresco Painting," &c. With twelve illustrations in colour and twenty-two in half-tone. (London: Chapman & Hall, Ltd. 10s. 6d. net.)*

effects of colour can be obtained. The harmony of analogy is the refuge of weakness and is but little removed from the monotony of monochrome. The harmony of contrast, whilst offering the more difficult problem, is the better field for the exercise of strength and knowledge.

Our author's chapter on the use and modification of colour decoration is one that should be carefully studied—before proceeding to rely entirely upon their own instinct or taste—by all those who would attempt colour schemes, although it must be granted that in the matter of colour, as in all true art work, the feeling of the artist, rather than carefully learnt rules of the student will ever be the most successful prime-mover in design. It is, however, desirable that the tyro should have brought before him the experience and knowledge of an expert with regard to the use of decoration in monochrome, the use of gold in decoration, the small interval or concord of closely related tones, colour decoration on coloured grounds, contours or outlines, and coloured surfaces under artificial light, which form the sub-sections of our author's chapter, to which we are now particularly referring. Having grasped the principles which underlie the practice of colour decoration the student is in a better position to approach the work of the artists of the past, and by a general and wide study of that work to develop his own originality and power of imagination, as well as an instinctive feeling for the right thing in a colour scheme.

The chapters in which Mr. Ward describes Italian decoration and ornament, coloured architecture in France, colour decoration in Germany, and colour decoration in England are epitomised rather than exhaustive, but the author has very well seized on the salient characteristics of colour treatment in each country, and thus within a small compass produced a thoroughly readable and pleasantly instructive book, which whilst not too profound for the amateur is yet valuable as a primer for the professional student of colour decoration in architecture. The book is illustrated with well-selected examples both in black and white and in colours.

NOTES AND COMMENTS.

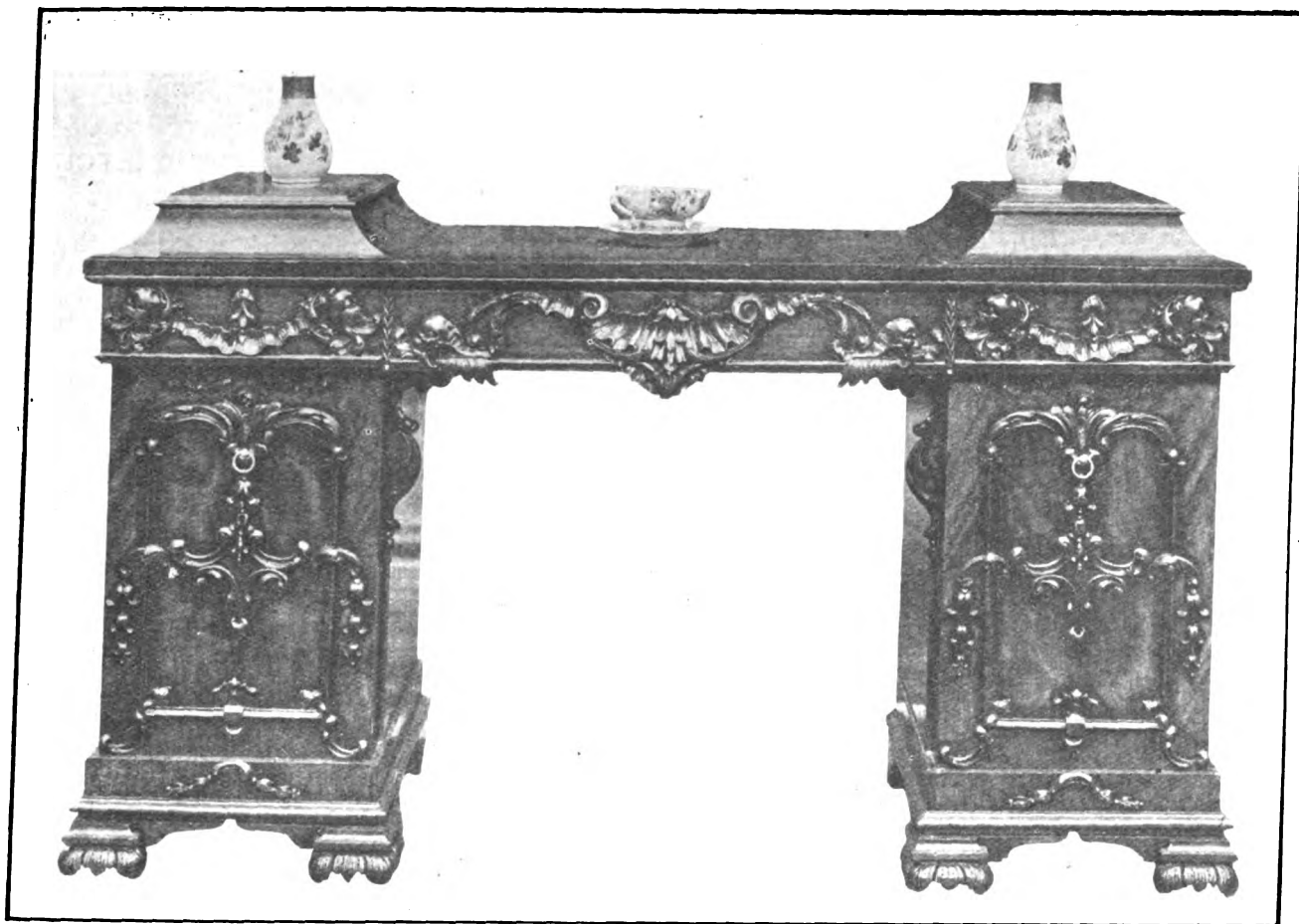
OUR contemporary, the *Builder*, is to be congratulated upon the result of its activity in concentrating public attention on the advisability of creating a Ministry of the Fine Arts in this country, and the meeting which was held last week at Conduit Street promised well for the furtherance of the movement. The self-constitution of a committee, embracing the names of Mr. David Murray, R.A., Sir G. Frampton, R.A., Sir Frank Short, R.A., Mr. Arthur Hacker, R.A., Mr. E. Guy Dawber, Professor Lanteri, Mr. Solomon J. Solomon, R.A., Mr. H. V. Lanchester, Mr. Wynford Dewhurst, Mr. W. Reynolds-Stephens, Mr. R. Colton, R.A., Mr. Edwin Bale, Mr. H. W. Wills, Mr. C. Stanley Peach, Mr. Henry T. Hare, Sir Aston Webb, R.A., Sir Thomas Brock, R.A., Dr. J. J. Burnet, Mr. Robert Donald (editor *Daily Chronicle*), the Editor of the *Daily Express*, Mr. M. H. Spielmann, and Mr. Frederick Blomfield, with an executive committee formed of Sir Aston Webb, Mr. S. J. Solomon, Mr. R. Colton, Mr. Wynford Dewhurst, Mr. R. Stephens, Mr. E. Guy Dawber, and Mr. H. W. Wills, ensures that a real effort will be made to bring about the composition of a Ministry of Fine Arts. We have before expressed our view that it is not a Minister of Fine Arts that is required in this country but a Ministry or Council who shall be empowered to advise a minister with such force that he may not venture to disregard their advice. We understand that it is proposed that such a council should consist of sixteen professional artists of acknowledged distinction, selected for their experience and skill in the decorative side of their profession. The various branches of Art should, it is suggested, be represented in this way:—4 architects (one of whom at least should be a specialist in garden and park planning), 3 sculptors, 3 painters, 4 designers,

1 engineer, and perhaps 1 antiquary (so that the preservation of ancient works of art would receive due attention).

We note that in a lecture on housing given by Professor Adshead before the Sociological Society of Manchester University, the question of providing decent homes for the poorest people is said to be closely wrapped up with the definition of the absolute minimum of accommodation. Professor Adshead, whom we may look upon as a recognised authority on housing, agrees with the theory that has been put forward in practical fashion by Mr. Arnold Mitchell, that the present ideas of local authorities and the restrictions of their by-laws are aimed at an unnecessarily high standard. It is admitted on all hands that the standard now desired is an impossible one, from an economic point of view, for the poorest people, and if they are to be housed in accordance with that standard the State must finance and subsidise the building of their houses. Professor Adshead said that one of the difficulties in the way of the reformer was the tendency of the bureaucracy to set up too high a standard, having regard to the ability of the individual to pay rates and rent. It was not considered satisfactory in any circumstances to build a cottage which did not contain three bedrooms, a kitchen, and a bathroom. With such a standard as that set up it was impossible for the poorest of the poor to creep out of their slums. This class of the people could only be housed in conformity with such a standard by municipal or State aided schemes. Liverpool and Glasgow had embarked on huge schemes of municipal-aided housing, and it might be said of these schemes, generally speaking, that the rents charged were little more than half of what would be required to put them on what was called an economic basis. Even then the rents were not low enough to get the very poorest people out of the slums. He thought, therefore, that there ought to be some relaxation of this high standard in order to level up the masses rather than to pick out individuals.

Mr. Lawrence Weaver, in lecturing before the Manchester Society of Architects, expressed the view which we should naturally like to see generally held, but, as we have already said, one that inevitably connotes State subsidisation for the homes of the very poor. Mr. Weaver said they all believed they were going to have a large number of cottages built in this country in the near future, either by the Government or other authorities. He thought it would be a serious disaster if the cottages were to be confined to a single type, even though it were a type with which they could be fairly well satisfied. There was a general feeling among people of taste and intelligence that the standard cottage would not do. He did not at all like the idea of the cheap cottage, but the cottages would certainly have to be cheap if they were to come, and though he was told on the best authority that the cottages to be built by local authorities would not have to go above £250, he did not think that it could be done at such a price.

The London County Council Education Committee had under consideration last week, the very important question of the housing of London University. After careful consideration of all the sites suggested, the Higher Education Sub-Committee had come to the conclusion that the Somerset House site was the most satisfactory, and for the following reasons: “(1) The area is between five and six acres, exclusive of the site occupied by King's College (about two acres). (2) The site is eminently accessible from all parts of London. (3) The site is adjacent to one incorporated college of the University, and is within easy distance of another incorporated college, and most of the principal schools. (4) The buildings are of great architectural merit. The position is one of great prominence as seen from the river side. The noise of the traffic would probably not be



A CHEFFONIER.—By H. GOODMAN.

found a source of serious inconvenience in view of the fact that the principal rooms would face on to an inner quadrangle. Somerset House does not, of course, satisfy the condition laid down by the Commissioners that the building should be specially constructed for the University, and considerable expenditure would no doubt be required to adapt the building for university purposes. At the same time, having regard to the high architectural merit of the existing building, it is not thought that the fact that it was not specially constructed for the purpose of the University is an insuperable objection.

The present deplorable strike in Dublin has necessarily affected the building trade of that city, in common with other activities, and it is not therefore surprising that the Glasgow Building Trades Exchange has received an appeal for help from the employers in the building trade of Dublin. At a meeting of members of the Exchange there appeared from Dublin two delegates, Mr. John Sibthorpe, president of the Dublin Employers' Federation, and Mr. Burton Phillipson, member of the Council of the Building Trades Association in Dublin. Mr. Sibthorpe in the course of his address pointed out that there were now two parties in the trade unions of Great Britain. There were the representatives of the conservative opinion in trade unionism, which fought but stuck to the bargain afterwards made. There was now the younger and more fiery trade unionism, and they were intending to use—though he was afraid the weapon had broken in their hands—Larkin's rough eloquence as against the quieter and more staid methods, which they thought were old-fashioned and out of date. It was said by some that Larkin was an exploded force, but in the meantime he had succeeded in gaining from the English trade unions over £60,000 in cash, and he had managed so successfully to engineer a system of food supplies that at the present moment, despite the fact that there were 25,000 bread-winners out of employment, there was

less destitution in Dublin than twelve months ago. So long as the unions had such supplies there was no chance of starving out that strike. If the hot-headed men of the trade unions over here were able to secure a victory, as in Dublin, they would assume the controlling influence in trade unionism all over the country, and the employers would be put in the position they in Dublin were in now, with their backs to the wall fighting for their life. That was what they recognised the struggle to be—a fight for leave to carry on their business and to direct their workmen as they thought fit. A victory for Larkinism would be a danger to the trade generally. He spoke of the loss the small employers in the building trade in Dublin had sustained. If these men were brought to bankruptcy it would be an absolute disgrace to the other employers and a feather in the cap of the strikers, so that the hope of the employers maintaining the battle would be blasted.

In an appeal held at the Surveyors' Institution with Mr. Daniel Watney as referee under the Finance 1909-10 Act, in which a Mr. H. Foulger appealed against assessments for undeveloped land duty in respect of land situated in Laindon, Essex, the appellant stated that the land was known as Whelps Farm Estate, and was developed by him as a building estate. Up to the passing of the Act he had built some 160 houses on the three estates which he was developing. After the passing of the Act the demand for houses came to an absolute standstill, and it was quite impossible to dispose of houses which had been built, or to develop further land. The whole of the value given to the land in question, over and above its purely agricultural value, was created by himself, and it was clear that the land was not liable to the duty claimed, the owner being willing to develop the land for building purposes. He submitted that under Section 16 (2) the land had been, and was being, used bona-fide for the business of land development, and

it was not being developed at the present time solely owing to the difficulties which had arisen as regards finance and security through the passing of the land taxes in the 1909-10 Act, and the consequent insecurity and depreciation which filled the land and building investment market owing to the uncertainty and hardship of the land taxes introduced by the Act. Large sums had been expended on the estate, and he was now left ruined and almost penniless. Not only had demands been made upon him for undeveloped land duty, but mortgages which were outstanding had been called in by the bank, and although he applied to several lenders to lend money against his property he met with no fewer than sixty refusals, due to the fact that the taxes of the 1909-10 Act had been passed, and that consequently the security of land and house property was not considered satisfactory, owing to the uncertainty and unfairness of the burdens introduced by the Act. He had been hampered by recent legislation, ruined in his industry, and he was now called upon to pay this duty for not carrying on that industry. The appellant submitted that he was not liable for undeveloped land duty; and he claimed that the whole of the assessable site value upon which the assessments had been made in no way exceeded the agricultural value of the land, except in so far as the assessable value might have been increased by his money, skill, and advertisement.

An architectural relic of great interest, in the shape of an old marble mantelpiece originally fitted in one of the ground-floor rooms of the premises in Lincoln's Inn Fields, recently acquired by the L.C.C. in connection with the Holborn to Strand improvement, was this week the subject of a report presented to the Council by its Local Government Committee. The mantelpiece was designed by Isaac Ware in about the year 1751, and bears an allegorical sculpture of Æsop's Bear and Beelive fable, which is attributed to the sculptor Collins. The Committee recommended that the mantelpiece be sold to the son of the late freeholder of the building for £250, but Mr. Hobson vigorously protested against the proposed sale, on the ground that the mantelpiece should be added to the Council's collection of antiquities, as representing a phase of internal decoration of which no other example was in their possession. The matter was ultimately referred back to the Committee, and it is practically certain that the mantelpiece will now be retained by the Council for exhibition purposes.

In a recent conference held in the United States on the protection of life against fire, Mr. H. F. J. Porter, engineer and secretary of the Efficiency Society of New York, read a paper in which he condemned very severely the present system of ladder fire escapes as being inadequate to the purpose for which they are installed. The proper system for protecting lives in the event of fire in buildings occupied by many persons, he said, was the use of fire walls. These should have at least two openings, as far apart as possible, and independent elevators and stairways should be provided on both sides of these walls.

As a result of the discussion on the subject of building codes, the following resolution was adopted:

It is the sense of this convention that—

(a) All building construction and reconstruction should be under government control, state or local, to the end that the greatest safety for the greatest number for the present and future should be assured; and

(b) A state building code, with requirements which local governing bodies may raise but not lower by local enactment, said requirements to be enforced by proper governmental machinery over all of each and every state, and

(c) That the classification of building construction is entirely one of relative ability to resist attacks by fire, and therefore in all building codes the term "fireproof" should be replaced by "fire-resistive," and that ordinary

frame construction should be classed as "combustible," and that the National Fire Prevention Association be requested to recommend approved standards for fire-resistive construction, which may be used by states and municipalities in their respective building codes.

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB.

WE regret that the subject set for our last month's competition has not proved more attractive, or that our contributors have found their attention to sketching and measuring diminished by the pressure of other matters.

"Toga" has selected for his subject the marble chimney-piece in the Mayor's Chamber of the Guildhall, Newcastle-upon-Tyne, not a satisfactory piece of design, and the least interesting feature in an interesting room. Neither in line nor in colour or material is the chimney-piece in agreement with the panelled walls and ceiling. The designer's employer would seem to have been obsessed with the costliness and importance of marble when a far more satisfactory treatment would have been to make the chimney-piece the culminating feature of the scheme of wood-panelling. "Toga" has made a very neat and painstaking drawing, but for the benefit of his technique will be well advised to severely limit the amount of ornament that he draws to so small a scale and correct the cramping effect of such work by drawing full-size details of ornament.

"Improver" has found an interesting subject in the simply-treated stone chimney-piece, dated 1599, from the Castle, Newcastle-upon-Tyne. We are glad to see that "Improver" is continuing to improve in his draughtsmanship.

"Plato" sends a thorough sheet of drawings of the famous chimney-piece in the old Reindeer Inn at Banbury, well drawn and a valuable record of this vandalised ancient monument.

We award the prize of two guineas to "Plato."

COMPETITION NEWS.

LONDON.—At the last meeting of the Court of Common Council a member asked what course the Bridge House Estates Committee proposed to adopt with regard to the architectural treatment of St. Paul's Bridge. Mr. J. R. Pakeman, Chairman of the Committee, replied that it was proposed to invite British architects to send in designs. Premiums would be offered of £300, £200, and £100 for the designs placed first, second, and third by Sir William Emerson, who would act in conjunction with the Committee as assessor.

NEWCASTLE.—The City Council have received the report of Mr. H. W. Wills, F.R.I.B.A., the assessor in the competition for the proposed baths for Benwell, Heaton, and Walker. The premiated competitors are:—1, Mr. Alfred W. S. Cross, London; 2, Messrs. Thomas Wallis & J. A. Bowden, London; 3, Messrs. Wright & Chapman, Newcastle. The assessor has reported in favour of Wharrior Street for the Walker baths; for the Heaton baths the Committee propose to acquire from Lord Armstrong a site containing 1,225 square yards, between Biddlestone Road and Rokeby Terrace, at 10s. per yard. The Committee ask for permission to borrow £27,000.

ILLUSTRATIONS.

MODERN-ANTIQUE FURNITURE.

WE have devoted our illustration sheets this week to reproductions from full-sized cartoons by Mr. H. Goodman, prepared for the guidance of his workmen in making modern-antique furniture. The designation modern-antique may be perhaps considered as a contradiction in terms, but it will be seen that the designs we illustrate, though based upon those of Piranesi and other artists of the eighteenth century, have nevertheless a certain individuality, whilst the furniture made from them is modern in execution. Mr. Goodman is an artist who, although he deals in antique furniture, is evidently imbued with the idea that it is as possible to design in the twentieth century as in the eighteenth, and offers his work as proof of his view. We also include in our pages photographs of work by Mr. Goodman.



A SIDEBORD.—By H. GOODMAN.

SOME ARCHITECTURAL NOTES IN PIEDMONT.*

By Mr. F. C. EDEN.

(Concluded from last week.)

Hugo's church extended both eastwards and westwards to the limit of the available building space, so when enlargement became necessary an artificial platform had to be formed by the erection of an enormous substructure upon which to build the eastern limb of the church. This was begun about the middle of the twelfth century. The former church was demolished by degrees, and it was not till the next century that the western bays of the present church were completed.

The precincts are entered by a fortified gatehouse, the iron-sheathed door of which is indented by many bullet marks; a steep double ramp leads to a small terrace, whence it is a further climb of about seventy steps to the main entrance. The great square fortress-like mass is the twelfth-century substructure above alluded to, and is built of a brownish-grey gneiss. The church itself is clearly distinguished from the basement both by its apsidal form and green hue, the material used being an amphibolite, found in erratic blocks scattered about the mountain-top.

The whole interior of the space below the church is occupied by a stair, the Scalone dei Morti, in part cut out of the living rock, surrounded by huge sepulchral recesses, the whole strangely impressive in its grim dignity. Some of the recesses contain sarcophagi, but one is grated, and, as the eye becomes accustomed to the dim light, is seen to be

occupied by a huddled group of skeletons, clad in tattered monastic habits. As Massimo d'Azeglio wrote:—"In this cavernous solitude, where the silence is broken only by the whistling of the wind, it would be impossible to find more fearful company or more suited to the spirit of the place." I know nothing at all parallel in English architecture except the stairway to the chapter-house at Wells, which however, in comparison, seems almost an exquisite trifle.

At the top of the stair is a fine Lombard doorway, the *Porta dello Zodiaco*, richly carved with signs of the zodiac and mythological monsters. After passing through this doorway you turn sharply to the right and mount a temporary wooden stair through what was formerly a library and sacristy, but is now practically a ruin owing to a besotted "restoration," still in hand, though I believe it has been suspended for twenty years or more. A model exists of the completed scheme. Heaven grant it may never come to fulfilment! The door of the church is richly moulded and apparently of thirteenth-century date. In its present deplorable state it is difficult to appreciate the church, and I shall not attempt to do so. Biella is reached in between two to three hours from Turin. It is a bustling little town, the centre of an important weaving industry. For miles up into the hills every stream works a series of mills, either directly or by electric transmission, and, in consequence of the absence of smoke, with the minimum of injury to the landscape. As might be expected from its position, Biella consists of an upper and lower town. In the former are several houses of mediæval date, with terra-cotta string-courses enriched with Gothic foliage showing through later trappings. At the end of the main, or rather only, street of the upper town is a Renaissance gate, from outside which the white buildings of Oropa may be descried perched on a mountain

B

* A Paper read at the Architectural Association on November 74.

shelf more than 2,000 feet above. The origin of this famous sanctuary was in this wise. About the middle of the fourth century St. Eusebius, Bishop of Vercelli, was banished to Palestine by the Emperor Constantius, a fautor of the Arian heresy. On his return he brought with him a cedar-wood image of the B. V. M., traditionally attributed to St. Luke, which he exposed to the veneration of the faithful of his diocese. But, being further persecuted by the Arians, he fled to the mountains of Oropa, taking with him the sacred image, which he concealed beneath a boulder of rock. On the cessation of this outbreak he built a rough votive chapel for the image, and this, which still exists, forms the nucleus round which the whole immense structure has clustered. This was in the year 369, so that, though the buildings of the church and hospice are of Renaissance date, and some very late, it will be realised that the sanctuary can boast a very respectable antiquity. When Dante was writing the "Divina Commedia" and Giotto was painting the Arena Chapel at Padua it was already nearly a thousand years old. A Benedictine community established itself here in the sixth century, and remained till their convent was overwhelmed by a landslip from the Mucrone in 1030. Fifty years later more Benedictines followed, to give place in 1170 to Cistercians, the last monks to occupy the valley, who remained till 1459, when Pope Pius II. gave charge of the sanctuary to the canons of Biella.

The present church was begun at the end of the sixteenth century, and was consecrated in 1600, when the Bishop of Vercelli appointed a mixed clerical and lay committee to administer the property of the institution. Shortly after this a design for a hospice for the accommodation of pilgrims was prepared by the architect, Negro di Pralungo, and the part adjacent to the church was begun. In 1644 the block enclosing the quadrangle on the entrance side was started, and in 1720 the façade was erected from designs by the celebrated Filippo Juvara.

Samuel Butler's description gives a fair notion of the general appearance and situation of the buildings. "Fancy," he says, "a quiet upland valley, the floor of which is about the same height as the top of Snowdon, shut in by lofty mountains upon three sides, while on the fourth the eye wanders at will over the plains below. Fancy finding a level space in such a valley watered by a beautiful mountain stream, and nearly filled by a pile of collegiate buildings, not less important than those, we will say, of Trinity College, Cambridge. True, Oropa is not in the least like Trinity, except that one of its courts is large, grassy, has a chapel and a fountain in it, and rooms all round it; but I do not know how better to give a rough description of Oropa than by comparing it with one of our largest English colleges." Just before the hospice is reached the road passes a grassy slope dotted with chapels that contain groups of life-sized figures. They are built of granite, with plastered walls and roofs of dark stone slabs, similar in these respects to the main building.

The forecourt is entered through iron gates between the terminal pavilions of two immensely long wings. The ground slopes up to a finely-designed stair, which lands you about level with the fourth storey of the pavilions. The ground floor on each side of the entrance is formed of open arcades, extending the whole depth of the front block. This loggia, which forms such a striking feature of the design, from whichever side you may be looking, is strictly utilitarian, viz., to shelter the multitudes of pilgrims from the weather, Oropa being the wettest place in the whole of Italy.

For how much of the façade Juvara was responsible I am unable to say—certainly for the grand stair and the central pedimented feature; whether the fine conception of the open ground storey was his is doubtful, since this side of the quadrangle was begun, as we said, in 1644, nearly eighty years before he comes upon the scene. The great quadrangle measures about 420 ft. by 230 ft., and is surrounded by a cloister walk, for the most part arcaded in that pleasant combination of arch and lintel falsely attributed to Palladio.

The hospice gives free lodging for nine days to all comers, of whom there may have been more than 100,000 in a single year. On great festivals the crowds are so great that shake-downs are spread in the corridors for the latest arrivals, by which stretching of the normal accommodation no less than 10,000 guests can be put up. Even with this enormous capacity there is a scheme on foot for nearly doubling the size of the establishment, including the erection of a huge domed church in the high ground at the back. A beginning has already been made after designs by an architect named

Golletti, who flourished, as all architects do (?), about the year 1750.

From Biella to Orta, which is on the extreme confines of Piedmont, if indeed it is not actually in Lombardy, it is a lovely drive of about eight hours, passing the little country town of Mosso S. Maria on the way.

Orta is chiefly known for its beautiful lake, but the little town, consisting of a single street, is full of good things. The Town Hall at the end of the piazza is a most picturesque object, adorned with fading heraldry frescoes. Just off the piazza on the way up to the church is the Palazzo Gemelli, a striking unfinished house, with a great pointed cove under the eaves, the *piano nobile* being defined by a band of cherubs below the windows and representations of the four continents above.

The entrance door is a refined piece of work, something more than reminiscent of Vignola at Caprarola. The cartouche attached to the key-stone is dated 1591, about forty years after the building of Alexander Farnese's great palace; but the cartouche looks rather later than the doorway itself, and is only stuck on. The detail is an improvement on Vignola's doorway in some respects—e.g., instead of the metopes being charged with rather dullish ornament they are plain and filled in with the dark-green serpentine, of which such excellent use is made in the buildings of the Sacro Monte.

In front of the palazzo is a broad paved and balustraded terrace, terminating in a pretty arrangement of steps.

The principal attraction to architects at Orta is the Sacro Monte, of which I have spoken before in this place, and so need say nothing about it now except to remind you that it consists of a series of chapels containing representations of scenes from the life of St. Francis. But, if you will allow me, I will show a few slides from photographs taken since the date of my former lecture.

Our trip through Piedmont is now at an end, but we have to get back to England somehow or other, so if you would care to see them, I have some views of places taken on the return journey.

The first is the Loretto chapel at Lugano; it is rather out of the way, and so is generally missed. It has a large portico before the entrance, the vault of which is ornamented with good modelled plaster cartouches and drops.

The shores of the Lake of Lugano are studded with picturesque villages, that of Castello, on the Italian side, being one of the most striking.

The town of Troyes, the capital of the department of the Aube, which lies on the main line between Basle and Paris, is remarkable chiefly for its stained glass and for its fifteenth and sixteenth-century figure sculpture. The only slide I have to show, however, is a fine iron lectern and two rather interesting Gothic doorways.

DISCUSSION.

Mr. Alec Horsnell, in proposing a vote of thanks to Mr. Eden, said they must congratulate themselves on the lecturer picking up many years ago that copy of the *Pilot* which had attracted him to the Piedmont district. The work just illustrated on the screen possessed much simple charm, and its picturesqueness rendered it an admirable place to go to for pictorial work. The local simple use of the Orders contrasted with large wall surfaces was something very different from the Rococo churches of Rome. The lecture had filled him with a very great desire to visit Piedmont for himself.

Mr. A. G. R. Mackenzie declared himself as somewhat a believer in the dictum quoted from Mr. Street as to the danger of looking to the Italian Renaissance for inspiration. He admired the picturesqueness of what had been shown, but he failed to see how it could prove useful under modern conditions.

Mr. Geoffrey Lucas said one thing which struck him as being peculiar was that the open arcades on the ground floor of the hospice at Oropa appeared to be such weak construction. He wondered how it stood.

Mr. T. C. Yates said the Italians never seemed able to leave a piece of walling plain. Indeed, in that country one longed for the repose given by a blank wall surface. When visiting Milan he had been much struck with the vaulting of the cathedral, but later he discovered it was partly painted. He wondered how they got materials to the tops of the mountains—as in the case of the Benedictine monastery on Monte Pirchiriano. It seemed to him they ought to avoid painted sham architecture.

Mr. J. L. Williams mentioned that while at Orta he



A TABLE AND COFFER.—By H. GOODMAN.

noticed the lintel forming the frieze over the columns, which was in hard stone, had a mitre joint instead of a mason's joint. It was certainly very economical. The same thing was to be found in the iron and wooden grilles. It looked unsatisfactory, but one felt the mechanics who executed the work had behind them a vast amount of information and a great precedent on which they could work. Another extraordinary thing was their marvellous variety and freedom. Before he had been to Italy he supposed the whole thing to be mechanical, but on looking closely it was easy to perceive the great individual skill of the Italian workman. Most of what was to be admired owed its merit to the mechanics who had worked on it rather than to the drawing-board. If those who possessed both the leisure and the means would pay a visit to the district dealt with by Mr. Eden, and would study the buildings closely, they would find them to be invaluable. With regard to the over-decoration of surfaces, he had to confess to feeling the great charm of those surfaces which were left untouched. Very rarely did these builders take the pains of bringing stone up from the valley to the tops of the hills; they used the materials found on the spot, and covered them with plaster.

Mr. W. Curtis Green, in closing the discussion, said the first time he stayed in this part, though not so far south as Mr. Eden had shown them, it was not in the expectation of seeing anything—in fact, merely on a layman's holiday. He had been, however, enormously impressed with the seventeenth-century chapels and some of the more ornate churches. He could not help thinking it was a period of architecture which had been very much neglected, and which would repay an architect to study. It seemed to him that some of those romantic chapels on the mountain-side were a sort of revulsion from the Reformation. He supposed this neglected period of the seventeenth century abroad did more to the development of modern architecture than any other. If they studied the wonderful plans of some of these churches, such as the chapel and avenue at Oropa, they would see there the genesis of town planning—if that word could be applied. The faults of these extraordinarily clever mechanics, as Mr. Williams had called them, came from rather too much familiarity with what they had to do. It was once said of a celebrated divine that he was far more at home in heavenly places than he had any right to be. The faults of the seventeenth century were largely due to the fact that these men did their work so easily they almost had a contempt for it. They had mastered the principles of the art, and do not seem to have been faced with any special requirements; there were no traditional problems and no new materials; building was made easy. To-day people were learning to regard all architecture as a contribution to art,

and were beginning to see there was good in every period. Of course, they did not want exactly to encourage a Baroque revival. With regard to Baroque and Rococo architecture, he had never exactly known the difference until he read the new book by Mr. M. S. Briggs on the subject. Mr. Briggs stated that "Baroque architecture is Italian described by a French name, and Rococo is essentially French, and is known by an Italian name. Rococo is loosely applied to any over-decorated building. Baroque applies to an historical period in Italy."

The vote of thanks was carried by acclamation.

Mr. F. C. Eden, in replying to some of the points raised, said that to set a great height of wall over very slender supports had been a delight to the Italians from early times up to the seventeenth century. The President deprecated the idea of a Baroque revival, and with that he quite agreed. But Baroque included two almost distinct styles: one was heavily loaded and pompous, the other was very simple. When they got the simple Baroque it exercised extraordinary charm.

MEDIAEVAL WALLED CITIES.*

THERE was fine walling made before the Christian era—by the Assyrians, Egyptians, the Greeks, and even the Romans: but the period from the eleventh to the sixteenth centuries was in Europe pre-eminently the masons' age. And their masonry was laid under special difficulties—stone was hard to get, all sorts of hindrances were raised against the mason. The badness or absence of roads made cartage a serious matter, and often when the route traversed land not in possession of the town or the monastery a heavy tax had to be paid to the lord whose property it passed through as the price of his permission. Tackle, too, for removing and hoisting the quarried blocks was of so rudimentary a kind that what a man could carry up the scaffolding on his back became a measure of the weight and size the stones should, except in special cases, be. Lime was necessarily costly, and not always good, and as for centreing, it was a most unpopular demand. The labour of squaring up the felled trees—let alone the conversion of the baulks into deals—was considerable, and the carpenters had a way of visiting the saw-pits and ear-marking the timber for their own purposes. We see timber squared and sliced up nowadays by the circular saw as easily, apparently, as one would square and slice up a carrot, and the railway truck and the lorry brings the tree

* Abstract of a Paper by Mr. Halsey Ricardo, F.R.I.B.A., read before the London Association of Master Stonemasons on Wednesday, November 26, at a meeting at the Cannon Street Hotel, E.C.

boles to our doors without our having to consider either the question of supply or the nature of the timber. But though in the Mediæval days there was in Middle Europe timber in plenty, many were the demands on it. Quantities were required for fuel; for smelting ores, iron in special, and for making charcoal. The smith and the armourer were in the nature of first-comers, and had to be served first. The mason, for his scaffolding and centreing, came a long way down the scale, and had to be content with the leavings.

These difficulties and obstructions proved a fine, though hard, school for the masons. They had to know the history of their material and its special properties; they learnt to treat their hard stone as so much jewellery, to be hoarded against sheer necessity; to be used in mass only where its strength was fiercely called for; as strings and cappings to save the softer stones. They handled the softer stones as they would children, putting them into secure and sheltered places, framing them with weatherproof borders, and strengthening them with buttresses against the thrust of roof or vault. They knew not only the quarry from which their stones came, but where in the quarry they lay, for they had marked them *in situ*, and helped to dislodge them. And they knew, not from hearsay but as eye witnesses, how vital it was they should be accurately worked and truly laid; and they saw to their bedding with their own hands. Their lives, the lives of their wives and families, and of their fellow-citizens depended on the honesty and thoroughness of their work. Miners with their picks, sappers with their tools, gangs of brawny-armed besiegers with their battering-rams would before long be testing the validity of their wall, and when a breach was once made there would be no mercy shown to the defenders. One can well suppose each stone was placed with a sense of the responsibility of its office.

The city wall was not only a protection, it was also a challenge; it almost invited, as well as defied, assault, and there were generally plenty of marauders ready to yield to the temptation and respond to the challenge. The strength of the wall was, it might be assumed, an index of the solid worth of the burghers behind it. Such enclosures predicated quantities of loot; the provocation was not only captivating—it reached the point of insult.

Till well on into the early part of the sixteenth century walled-in towns are the usual incident in the background of frescoes and of the pictures to be seen in the various Galleries. The untravelled Englishman is apt to consider their presence as a piece of childish pleasantries on the part of the painter, who sticks them in for theatrical effect, to give the air of pastime and romance, and to provide more interest to his barren rocks and hills. But a very slight acquaintance with the Continent suffices to show that even to this day walled towns do occur in the landscape, if not with the profusion that Benozzo Gozzoli represents, at least with a frequency that seems to justify their insistence in the Quattrocentists' pictures. What we see now are the ruins and relics that have escaped overthrow, relics that survive in places where the population has shrunk rather than increased, places that were in the backwaters of the stream of contest which flowed during the Middle Ages, and so managed to parry the vindictive destruction that was wreaked on the more considerable towns by the victor for the moment.

To the citizen, the walls had really a very actual and stern existence, and he had frequent reminder of their importance and their protection. Every time he left the city and returned he had to pass its gates and the challenge of the sentries, and there was the personal danger of being benighted outside the walls to be feared. As the city prospered and its population increased, the walls became more and more obtrusive—ringing it in, as an outgrown jacket, constringing its growth, so that the streets grew ever taller and darker, since the only extension possible was vertical. The pressure, as well as the security, of the walls was daily before his eyes. It is small wonder that their record occurs so frequently in the painters' pictures.

We get a picture of what life was like at the gates from Cellini's autobiography. Mediæval fortification came from the East. The first walled-in enclosure was the Garden of Eden, through whose gates Adam and Eve were driven forth. We see pictures of walled-in towns in the sculptures in the Assyrian Room in the British Museum. There are the walls with battlements and machicolations, the moat round the walls, the archers on the *chemin de ronde* and gathered on the turrets. Against these defences come the sappers and miners, the catapult and battering ram, the wooden towers on wheels, the stringers, the archers, the fire-brand and the pike. Against this system of attack and defence—practised and developed from the dawn of recorded history—the Roman legions had to contend, and later on the Crusaders.

It was these latter, in the eleventh and twelfth centuries, who organised and almost originated in Europe the art of military architecture. They brought back with them from Asia Minor a host of bitter experiences and a very lively sense of the intricacies of attack and defence. They had been initiated by hard contact into the tradition—some thousands of years old—of how to build and how to destroy; how to build that not the least ~~vantage~~ should be given to the enemy, every stone worked and laid with the supreme of care, since the life of the garrison depended on its efficient service; how to plan to meet the mischances of open warfare and of treachery; to make retreats, ambush, barricades against the superior numbers of their opponents; to provide against despair, and give a fresh arm to courage. Terribly expert in the stubbornness of warfare, these Crusaders came back to Europe to practise on their neighbours and their rivals the military craft they had learned abroad. Richard I. builds his Château Gaillard as a curb upon the aggression of Philip Augustus; each great lord entrenches himself within his castle, the burghers strengthen their walls to meet the fierce onslaught.

Later on, in the fourteenth century, when from amongst the bands of broken soldiery the condottieri system grew up, the towns had to protect themselves from the inroads of these vagrant freebooters as vigilantly as from their own rivals and traditional enemies. But beyond keeping the walls and fortifications in good repair this errand soldiery had little effect on the forms of military architecture. They preferred to fight in the open, though they were ready enough to sack and loot a town when the victory was gained. But they were not builders, and were restive under a prolonged siege.

They, as well as gunpowder, quickened the action of warfare, and, having no particular home, took no interest in reconstructing the defences they had overthrown. Treachery and bargaining, in Italy especially, shortened the tedium of a siege.

Leagues and compacts ruined or saved towns almost as effectually as walled defences, and occasioned less bloodshed. When the metropolis surrendered, the smaller cities of the State followed suit; there was less individual responsibility in precipitating war and less personalty as objects of attack. A few selected places of strategic value were elaborately fortified, and on their power of resistance depended the fortunes of the State.

Cannon had been employed for a century or more in battles before it was recognised that the use of firearms rendered the Mediæval system of fortress-building vain and obsolete. It was just on the edge of the sixteenth century that at Ostia and Civita Vecchia the architect and sculptor San Gallo invented the use of bastions, thus making a revolution in the art of fortification, and anticipating the famous measures of Vauban.

Nor was it all quietude and amity within the gates of the walled town. Faction would start up like wild fire, and the Tybalt of the moment would pay with his life for its sudden fury. Organised conspiracies, like that of the Pazzi at Florence, threatened to wreck materially as well as metaphorically the town, and the Podesta had an anxious time of it. Each new Pope elected meant a new political combination, and the high probability of street riots and damage to property as well as to persons. It is a common feature of the Italian palace to have the ground-floor windows protected by a stout iron grille, giving a prison-like look to the base of the building. It was, indeed, a most necessary precaution. The elected cardinal on ascending to the Papal chair, gave up his palace to the mob for pillage. The orgy of the streets made a livid contrast to the solemnity of the election.

But beneath this struggling ferment there is still a quiet stream, pursuing its way undismayed by the violence overhead, leaving behind it as evidence of its temper and also of its ideals, the restrained, delicate, spacious work of the Renaissance. We think of England in the time of the Wars of the Roses as covered with a network of conflict—but the stream of industry flowed almost undisturbed beneath the clash of faction. Think of the work of the Della Robbias, of Rosellino, Jacopo della Quercia, Mino da Fiesole—the noble calm of the faces they portray; the dead men and women (now turned to marble) lying on their biers in the shelter of the church that enfolds them. It is not till the sixteenth century, when Italy by a succession of foreign invasions lay supine beneath the weight of the Imperial tyranny of the Spaniard, that its art flung itself out into turgid and futile vehemence so far as it shows pieces are concerned, and into a patient quietism so far as the humbler crafts required.

The walls, with their heraldry of square or swallow-tailed battlements—a defence against the arrows from the cross-



A CABINET.—By H. GOODMAN

bow—gave place before the presence of cannon, mortars, and “scoppietti” to the new science of engineering, with its bastions, casemates, and glacis. Fighting becomes less a matter of personal prowess; no soldier appears on the ramparts; the resistance, except when the cannon speaks, is silent, invisible. War no longer flaunts like a gay tournament, a species of athletic sports; it has become a grim business, dour and unlovely, and the new walls reflect this aspect.

There is something humorous as well as practical in the Mediæval contrivances for raining down stones and molten lead on the heads of the besiegers; in the archer's nest behind the battlement and the pendulum-like slit through which he fired, in the ox hide stretched over the roof of the alure, to counter the blazing dart, which retained the head of the animal to serve as a grotesque decoration. Pennons flew from the various turrets, the banner from the keep. All this and much more subsided before the might of the “villainous saltpetre”: the decorative side of warfare disappeared. The drum remains. The poor piece of ass's skin has outlived the stout masonry of Château Gaillard, the arrow, and the pike. The battlements that topped the walls of town hall and church, as well as castle and town, are gone

or are preserved in pathetic witness to the strife of the Middle Ages. To come across such a town as Montagnana in this year of grace is to encounter the ghost of a town; it seems incredible that it should be in going order and pulsing with active everyday human life. Although the moat is dry, the town stands insulated from anything like modernity, and the tourist is challenged—on behalf of the Octroi—before he can be permitted to pass its gates.

How remote from our time is all the Mediæval stir and pageantry. Pompeii is more akin to our daily life than Marostica. Even the benches of the amphitheatre at Verona are more homely than the forked battlements of the Scaligers.

[The concluding part of the lecture consisted of an exposition of lantern slides bearing on the subject, and illustrating the points made by Mr. Ricardo.]

The ancient carved mantlepiece in the Court room of King Charles II. at Dartmouth Butterwalk has not yet been sold, despite statements that a purchaser has been obtained, but efforts are nevertheless being made to find one. The amount asked for the carving runs into four figures.

THE CORROSION AND RUSTING OF IRON.*

By ERIC K. RIDEAL.

It is a well-known characteristic of human beings that the commoner and more intimate things of this life have been more deeply investigated, but at the same time are less understood than those that are more distant. This holds true to a great extent in the case of the corrosion and rusting of iron. Time after time has the convenient verdict "structural failure" been brought by an intelligent jury when investigating the "death" of, say, a water pipe, a suspension bridge, or a girder roof, although no evidence of the actual cause of the disaster may have been forthcoming. A small number of these failures may be attributed to inaccuracy in mathematical calculations, but undoubtedly one of the most prolific causes of accident is attack by rusting and corrosion.

A microphotograph taken of a section of a tie-rod that failed in Charing Cross railway station shows that practically three-quarters of the metal had corroded away, owing to the absence of a suitable protective surface. The situation was one very conducive to corrosion, since the moisture deposited on the cold surfaces of the metal was highly charged with the sulphur acids of burning coal.

Although the phenomenon of rusting has been observed and noted from times immemorial, it is only comparatively recently that a systematic investigation of the various factors that go to make up the process has been attempted. Chemically, rust is of very complex and variable composition, consisting of hydrated oxides of iron, basic ferric carbonate, organic matter, and frequently fixed sulphur, phosphates, and silicates.

Many theories have been advanced to explain the mechanism of iron corrosion, and, in the author's opinion at least, the so-called electrolytic theory advanced in America by Whitney, Cushman, and Whipple, and in England by Tilden, Walker, Lambert, and others, is by far the most convincing. We may regard all metals as exhibiting definite tendencies to go into solution even in pure water. The magnitude of this "solution-tendency" depends on two factors: (1) the nature of the metal—zinc, for example, possesses a very high and platinum a very low solution-tendency, and (2) the composition of the solvent, e.g. copper possesses a high-solution tendency in ammoniacal solutions and a low one in copper sulphate. During the process of solution the metal becomes electrically charged, and the dissolved portion takes on an equal and opposite charge. An electrical balance is soon arrived at, and solution ceases unless there is some extraneous mechanism to prevent equilibrium being attained. This disturbance of equilibrium may be accomplished by the formation of numberless minute electrolytic cells all over the surface of the metallic plate. Each cell consists essentially of two contiguous metals of different electrolytic solution-tendency immersed in the same electrolyte.

By this means a complete electrical circuit is formed, and one electrode can continue to corrode, while at the other an equivalent amount of some other metal (or hydrogen) possessing a lower solution-tendency than the dissolving metal is deposited. It will be noticed that this theory demands for the condition of rust formation (1) the presence of contiguous conducting particles or nuclei of different electrolytic solution-tendencies; (2) contact with an electrolyte.

In the case of pure electrolytic iron there are no nuclei of solution-tendencies different from that of the rest of the metal, and if it were not for the fact that iron possesses a crystalline structure electrolytic iron would not rust when immersed in tap water. Unless there is some alternative mechanism for the removal of hydrogen, even impure iron or steel will not rust. Generally atmospheric oxygen accomplishes this by direct combination with the hydrogen; the rate of combination of the two gases consequently governs the rate of corrosion (unless, as has been mentioned above, another depolariser is present); this is a matter of some importance when the question of preservation of ironwork is raised. Ordinary cast or wrought iron and steels contain many small nuclei of foreign matters, e.g. carbides of iron, graphite, traces of metals such as manganese, metallic conducting bodies, such as slag inclusions, also silicon, phosphorus, and allotropic modifications of the iron itself. These are capable of acting as the electrodes of small corrosion cells set up over the surface of the metal, hydrogen is liberated,

and some depolariser permits the cell to continue working. In the light of this theory we can now briefly survey cases where corrosion is met with in practice, and at the same time examine the utility (or, as the case may be, the futility) of the methods in vogue for checking that corrosion.

Rusting in Ferro-concrete.—The corrosion of steel girders encased in concrete is somewhat rare, but examples are met with occasionally. It is found in these cases that the concrete is not waterproof and is generally deficient in lime. The following explanation serves to indicate the mechanism of corrosion in the light of the electrolytic theory. Since concrete conducts electrically when the pores are full of water, the surfaces of the steel come in contact with an electrolyte; small corrosion cells are set up on the surface of the impure steel; the liberated hydrogen is removed by aerial oxygen, the rate of combination with which is greatly accelerated by the catalytic effect of the rough concrete surface. When the cells continue to work, a slight thermal effect causes the small cracks in the concrete to open up and permit the ingress of more water.

The fact that ferro-concrete corrosion is not more prevalent can be explained as follows: It is well known that several metals, notably iron and nickel, when made the anode of an electrolytic cell in an alkaline electrolyte, become "passive"; that is, they no longer exhibit a tendency to go into solution, and appear to possess an abnormally low electrolytic solution-pressure. This phenomenon has been recently dealt with at the Faraday Society, and the author would refer those interested to the Transactions of that body. Concrete contains lime, and frequently traces of stronger alkalies; these dissolve in the percolating water, and cause it to become distinctly alkaline, the anodes of the corrosion cells become passive, the current ceases, and the steel does not rust.

As protective agencies against ferro-concrete corrosion various forms of soaps and oils have been suggested. These render the concrete waterproof, and thus prevent the formation of rust cells. A dense cement rich in lime is, as we have seen, the most suitable material for embedding steel work. This is a typical example of rusting brought about by self-generated electrical corrosion. A very frequent cause of corrosion is from externally derived currents.

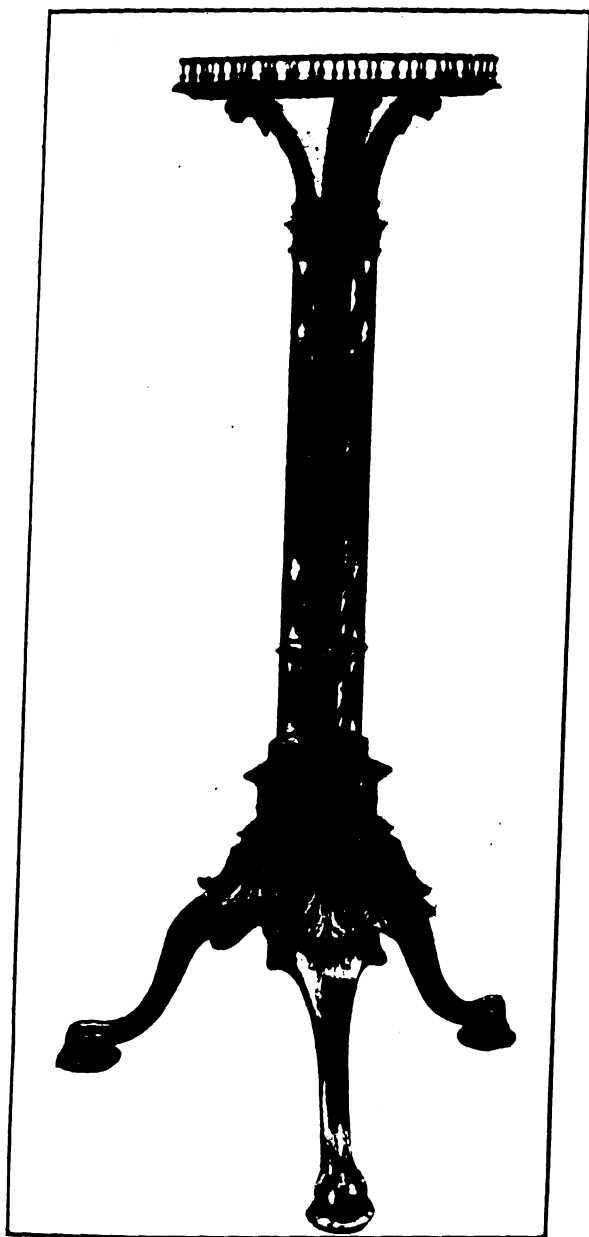
The insulating coverings of electric light leads, telephone cables, and even electric-bell wires, when damp, become conducting, and are a source of stray currents which may use any neighbouring iron girder or pipe as a part of the electric circuit, with the result that corrosion sets in. The earthed return rails of trams, unless there is no drop of potential along them (a state of affairs unattainable in practice), are a common source of these strong currents, and corrosion of neighbouring ironwork is practically certain. To minimise the effect, the pipes or steel girders must be either (1) sufficiently insulated from the wet soil by means of a protective coating or insertion in dry cement or brickwork, or (2) connected to the rails at frequent intervals, thus causing the whole network to be at one potential.

Other cases where externally supplied currents cause corrosion are to be found at the junction of dissimilar metals, such as brass and iron, copper and iron, and even cast iron and wrought iron or iron and steel, these being in reality magnified examples of corrosion cells. Difference in stresses, porosity, or previous history may cause iron, otherwise uniform in composition and behaviour, to possess different electrolytic solution-tendencies. In hot-water pipes of a circulating system slight electrolysis between the hot and the cold portions does undoubtedly occur.

Not only is the iron corroded away by these currents, but at the same time the surrounding iron, although unaltered in shape, is converted into a soft and spongy form unsuitable for any structural work. The nature and composition of this modified iron (considered by some to be an allotrope) is still unknown. It has, however, been shown that it contains both phosphates and silicates, probably indicating that selective oxidation of the impurities in the iron (Si and P) has been brought about by the electric current.

Corrosion in Water Pipes.—Water pipes are in the unfortunate position of being exposed to both internal and external attack. The factors that govern the rate of attack on each side are different in character, owing to the difference in the natures of the electrolytes in which the surfaces are immersed. The material for pipes depends on the size; for small pipes cast or even wrought iron is very suitable, but as the diameter gets larger, stronger, thinner, and consequently proportionately lighter, pipes may be constructed in steel. The thinness of steel pipes has often been cited as a disadvantage of this material, for it is clear that if corrosion once sets in bursting would occur. The investigation of the

* Abstract of a Paper read on Dec. 1 before the Society of Engineers.



A PEDESTAL TABLE.—By H. GOODMAN.



A PEDESTAL.—By H. GOODMAN.

rate of corrosion in water pipes laid in the ground is difficult, since they can neither be inspected nor repaired unless the ground is opened up. The practice of laying them with gas and electric mains in a common tunnel would seem worthy of greater support than it receives at present.

Surface waters containing relatively large amounts of carbon dioxide and oxygen rapidly corrode ironwork, while rusting is accentuated if the water is very soft. Many cases are on record where such waters have in a few months corroded over three-fourths of the effective cross-section of a pipe. Small quantities of lime when added to such waters precipitate a thin protective film of calcium carbonate on the metal. This film is a very useful antidote to corrosion, and its value has for a long time been overlooked. In a recent report by the Corrosion Committee of the Institute of Metals Dr. Benbough has noticed cases in which the film has been so thin as to be translucent and yet has produced a completely protective effect. Drainage water containing, in addition to carbon dioxide and dissolved oxygen, hydrogen sulphide, chlorides (e.g. sea water), nitrites, and nitrates and ammonia, all readily attack iron pipes.

The effect of the iron hydroxide, basic carbonate and occasionally sulphide which are deposited by the process of rusting in the small corrosion cells is to accentuate corrosion, since, unfortunately, these salts of iron act as nuclei having solution-tendencies different from the rest of the iron. This phenomenon, namely, that rust is a conductor of electricity, behaving as a metal having a more or less definite electrolytic solution-tendency, thus making it suitable as an electrode in a corrosion cell, explains the well-known fact that if rusting has once commenced it is useless to apply any paint or

other protective material until every scrap of rust has been removed.

Another deduction that is also more or less borne out by experience may be made—viz., when rusting has once commenced the subsequent rate of corrosion does not depend on the composition of the original iron or steel. It is only after a considerable period has elapsed that the rust surface will become relatively so big, and the attacked iron surface so small, that it may be said that the rust protects the ironwork. Certain waters, however, which contain a great deal of colloidal organic matter—e.g., marshy waters, containing the sphagnum acids—deposit their colloidal contents on the rust and cause a protective film to be formed over the whole of the ironwork, protecting it for a great number of years.

When steel pipes are used, the phenomenon of "pitting" sometimes occurs. In these cases the metal corrodes in spots. This subject has been investigated by G. and R. Whipple, who have come to the conclusion that pitting is due to the presence of mill scale. They found that the magnetic oxide of iron was more active in this respect than the red rust (Fe_2O_3). Steelwork completely covered with scale would not be very liable to attack, since the surface would be fairly uniform. It is only when part of the scale has been removed mechanically, exposing the steel surface underneath, that corrosion proceeds with some speed; the remedy against pitting is clearly to remove all the mill scale before use.

Quite recently an interesting case of external corrosion was investigated by the author. In a well-known club the hot-water pipes had been laid in terrazzo paving, the heat

of the pipes acted on the magnesium oxychloride of the cement, liberating hydrochloric acid. The liberated acid acting on the metal in a confined space necessitated the removal of the pipes a very short time after being laid, and their being replaced by new pipes which were not allowed to come into contact with the paving.

The Protection of Ironwork.—Cushman gives an interesting list of the various means of protection adopted for preserving different kinds of iron and steelwork:—

Coating	Material used for
Zinc, tin, copper, lead	Roofing and sheathing of buildings, wire for telegraph, fencing, suspension cables. Nails screws, bolts and fittings. Tanks, vessels and utensils, chains, pipes and tubes for special purposes
Paints, varnishes, bitumens, cements	Structural iron and steel, decorative ironwork fire escapes, locomotives and cars. Smoke stacks, gas and oil tanks, pipes. Machinery in part, boats and ships, boilers on the outside, trolley poles, masts, posts, mailboxes.
Lacquers, varnishes, japans & enamels	Small articles, hardware utensils, implements, tools and cans
Processed after manufacture to form a skin of oxide, phosphide, or some other compound	Structural steel, gun-barrels.
Usually unprotected	Machinery in part, tools and farming instruments, chains, boilers and tanks inside. Railroad rails, plates and bolts.

From the point of view of the electrolytic theory, the protection of ironwork from rust resolves itself into the problem of preventing the corrosion cells from working. The unit cell, as we have seen, consists of three essential parts, two contiguous, electro-chemically dissimilar, metallic particles with their surface exposed to a common electrolyte. In order to prevent current from flowing and thus stop the operation of rusting, we may adopt any of the following methods:—

I. Elimination of Dissimilar Electrodes.—The passivity of iron in the presence of alkaline electrolytes has already been alluded to. Any other method of making the iron surface homogeneous instead of relatively heterogeneous will eliminate the variations in solution-tendency observed over the surface of an iron liable to rusting. Immersing the sheet of iron in a strongly oxidising solution, such as chromic acid, brings about the oxidation and elimination of the various impurities, leaving a homogeneous surface of nearly pure iron: the same result is obtainable by electro-plating impure iron with a film of the pure metal; this method of protection has been recently adopted for use on a large scale.

Galvanising iron by dipping it in, or electro-plating it with pure zinc is one of the oldest methods of bringing about uniformity of surface. Zinc possesses one great advantage—it will form a solid solution with iron; thus dipping iron into zinc ensures a perfectly uniform skin. A metal like tin, which contracts when applied to an iron surface, thus exposing part of the underlying metal, is clearly unsuitable for this purpose. An attack on galvanised iron has been started recently, it being said that the use of galvanised iron is both dangerous and useless for a potable water. It is true that zinc salts, when taken internally, are toxic in character, and although the doses would be nearly infinitesimal, symptoms of ill-health would probably follow. Furthermore, the solution-tendency of zinc is greater than that of iron. As a matter of general practice the coating of zinc on a galvanised pipe is so good that the surface is practically homogeneous, and even if small impurities in the zinc itself produced corrosion cells in the metal, a protective film of oxide and carbonate of zinc is very quickly formed.

The attack on galvanised iron is perfectly unjustifiable unless the iron is not really properly coated with zinc, when, of course, rapid corrosion and solution of this metal will take place. This fact is so well known that the practice of fixing galvanised iron with iron nails is now obsolete. The Sheradizing process may also be included in this category. The blowing of superheated steam on to the surface of hot iron is another method that has been adopted in practice for producing a uniform skin; in this case the film consists of a homogeneous oxide of iron.

II. Raising the Resistance of the Electrolyte.—We have noticed that the current has to flow through the elec-

trolyte in which the iron is immersed. By raising the specific resistance of this part of the circuit the current flowing in each elemental cell will be decreased and the corrosion correspondingly lessened. One of the best rust-preventers consists of a mixture of tar and hydrocarbon oil applied to the cleaned and heated surfaces of the metal. An adherent waterproof film of badly conducting tarry matter is thus obtained. Its effectiveness is so well known as not to require mentioning in detail. Paints, notably those containing red oxide of iron, act in a similar manner, but as has been shown by Liebrich and Spitzer, the paint particles themselves may act as electrodes, provided small quantities of water are present.

Generally, paints are not quite waterproof, and frequently, in the process of drying out oxidation of the organic oil present actually generates water *in situ*: under these conditions corrosion may be actually augmented by the application of thick coatings of paint. Suitable paints should possess high specific resistances, great adhesive powers and tenacity, a thermal dilation-coefficient approximating to that of iron, and a minimum amount of included moisture or easily oxidisable matter containing hydrogen. Cushman divides pigments into three classes—(1) inhibitors, (2) indeterminates, (3) stimulators.

Inhibitors	Indeterminates	Stimulators
Zinc, lead chromate	White lead, basic carbonate	Lampblack
Zinc oxide	Sublimed lead, basic sulphate	Ppt. Barium sulphate
Zinc chromate	Sublimed white lead	Ochre
Zinc barium chromate	Lithopone	Bright red oxide
Zinc, lead white	Orange mineral	Carbon black
Prussian blue	Red lead	Graphite
Chrome green	Litharge	Barium sulphate
White lead	Venetian lead	Chinese blue
Ultramarine blue	Calcium carbonate	
Willow charcoal	Calcium sulphate	
	China clay	

It is interesting to note that the chromates all come within the first category, doubtless owing to the "passifying action" of these salts.

The above table disregards one of the most important factors in paint protection—namely, the nature of the vehicle in which the pigmentary particles are suspended. Friend, who has investigated the subject very carefully, has shown that linseed oil, when used as the pigmentary vehicle, undergoes prolonged atmospheric oxidation.

He likewise showed that films of the linoxyn, the oxidised product of linseed oil, were distinctly permeable to water vapour.

Slade suggests the following procedure as a test for the porosity of paints to water. An iron spiral coated with a film of paint is made the cathode in an electrolytic cell: the rate of increase of current through the cell is a measure of the porosity of the paint film to the electrolyte. I have obtained comparable results by making use of a very simple apparatus in which no external source of current is necessary. The paint tester consists of a modified Daniell cell, in which the zinc rod is replaced by an iron plate or rod coated with the paint to be tested, the electrolyte consists of normal sulphuric acid. This is contained in a porous pot, the other electrode is as usual a sheet of copper in copper sulphate. As in Slade's apparatus the rate of increase of current is a measure of the porosity of the paint. It is free from the disturbances that might be caused by polarisation or passivity.

III. Protection by means of Metals.—The electrolytic theory of corrosion is based on the assumption that nuclei having a low solution-tendency permit the passage of iron of relatively higher solution-pressure into solution. It is clear that if this assumption be correct, metals of still higher solution-tendencies (those more electro-positive than iron) should by their own solution be capable of protecting iron.

For practical purposes it is of purely secondary importance how much greater than that of iron the solution-pressure of the protector should be, provided it makes a good electrical contact with it.

Zinc (a metal of high solution-tendency) has been used since the time of Sir H. Davy, and has been found to be the most suitable. It has been advised to use 1 square foot of zinc to every 50 square feet of iron surface, and then to diminish to 1 square foot per 100 square feet of surface.

IV. Protection by externally applied Currents.—This

method of protecting boiler tubes from corrosion appears likely to become of great practical importance in the near future. The process consists essentially in artificially lowering the solution-tendency of the iron by means of an improved electric current. The iron, acting as an anode of the corrosion cell, tends to go into solution, but is prevented from doing so by being made the cathode of an artificial cell driven by an external source of current, such as a dynamo or set of accumulators. As anode of the artificial cell either a soluble electrode like iron or an insoluble one like carbon may be used. Harker and McNamara, at Sydney, Australia, and Stanton Clement and Walker, at Pittsburgh, U.S.A., have pointed out, and experiments carried out at the Manchester School of Technology have demonstrated, that the quantity of currents required to prevent corrosion is usually very small, and can be determined from the actual loss on corrosion. The most suitable current-density under normal conditions is said to be about 0.1 ampere per square foot. The practical difficulty of insulating the anodes of the artificial cells from the rest of the iron seems to be overcome.

The foregoing brief summary of the influences at work and of the methods of checking corrosion serve to show that the so-called electrolytic theory is perfectly in accordance with observed facts, and that it offers reasonable explanations for the somewhat complex and sometimes mystifying phenomena that are occasionally to be noted.

Testing Iron and Steel for Corrodibility.—The constructional engineer who is interested in the question of corrosion from the practical standpoint must have some means at his disposal for testing the suitability of different kinds of iron and steel, and also the efficiency of the various processes of painting, plating, or otherwise treating metals which may be offered to him. As far as systematic testing is concerned this, having regard to our present state of knowledge on the subject, is out of the question.

It is absolutely necessary to govern and study local conditions, for not only is it practically impossible to reproduce the natural condition of aëration, dilution, changes in electrolyte composition, light and darkness, slight mechanical abrasive actions of sand, &c., and other more or less accidental disturbances that obtain in practice, but a further difficulty is met with in sampling the iron or steel for testing purposes. Small pieces suitable for careful investigation usually yield data that are in no way comparable to the actual results obtained in the body of the iron or steel itself. The oldest method in vogue is the immersion test.

Strips of the metal are carefully cleaned and weighed, and are placed in samples of water, or exposed to similar atmospheric conditions as will be met with in practice (e.g., in air for outdoor construction; in fumes of chemicals for steel that is to be used in industrial constructional work). After a long period of exposure the samples are taken out, carefully scrubbed with a brush, dried, and weighed. The loss of weight per unit surface per unit time is the corrosion factor.

In addition to the objections of impossibility of suitable sampling and inability to reproduce natural environments, the method possesses other great disadvantages.

The influence of small quantities of different elements on the corrodibility of iron has been investigated in great detail; but owing both to lack of uniformity among the methods of testing and to our experience as to the nature of really pure iron, conflicting statements are frequently met with. The following classification may be taken as a summary of the preliminary work on this subject, carried out by various experimenters, notably Burgess and Aston, Friend, Cushman, and others:—

Elements Causing Increased Corrodibility.	Elements that do not Cause Marked Changes in Corrodibility.	Elements Causing Slight Decrease in Corrodibility.	Elements Causing Marked Decrease in Corrodibility.
Manganese	Aluminium	Lead	Copper
Selenium	Arrenic	Cobalt	Nickel
Silicon	Silver	Tin	Chromium
Sulphur	Tungsten	—	—

The Influence of Carbon.—The physical and chemical changes caused by the addition of small quantities of carbon to pure iron are so marked and varied, and the components of the iron-carbon series are so many in number, that investigation of the factors governing corrosion in cast and wrought iron and simple steels is a matter of the greatest difficulty. The problem is further complicated in practice by the unavoidable presence of traces of other elements—e.g., manganese, phosphorus, and silicon, while for other reasons the addition of elements such as



A CANDELABRUM.—By H. GOODMAN.

nickel, chromium, or tungsten is advisable. Corrodibility, like the other physical characteristics, is greatly influenced, as has already been mentioned, by the treatment to which the iron-carbon mixtures may have been subjected.

Analyses by themselves are liable to be very misleading, for from the composition of a piece of iron or steel alone practically no data as regards its corrodibility can be drawn. It is essential to have information, not only on the percentage composition of the material, but also on the distribution of the components in the metal.

ENGLISH NEO-CLASSIC ARCHITECTURE.—III.

THE fifth of the course of ten lectures now being delivered on Thursday evenings at London University, Gower Street, W.C., by Mr. A. E. Richardson, F.R.I.B.A., dealt with

THE MATURED ROMAN PALLADIAN SCHOOL.

LECTURE V.

The student of the rise of the Neo-Classic movement in England reaches by the second half the most brilliant period of the eighteenth century. The ambitions and experiences of the preceding age, said Mr. Richardson, are augmented and become frugiferous: fresh groups of artists enter the lists, further researches in Italy and Greece are encountered, the main stream in its irresistible course absorbs the best of contemporary French architecture. Such is a reasonable conspectus of this rather maligned period.

As we study the art of that day at closer quarters the advantages of foreign travel to it stand out in greater relief. The efforts of the Society of Dilettanti during the ten years from 1760-70 were directed with feverish activity, not merely to theoretical inquiry into matters of a past

civilisation, but towards the furtherance of a living and contemporary art; the benefits were immediate and commensurate. The proposal for the foundation of a Royal Academy of Art emanated from this Society. In turn this led to the formation of the Architects' Club in 1791, with headquarters at the Thatched House Tavern—these gatherings foreshadowed the foundation of the Royal Institute of British Architects.

Of the group which immediately preceded Sir William Chambers, the most conspicuous figure was Sir Robert Taylor. He was born in 1714 and died in 1788. At an early age he visited Rome, and returning to England commenced as a statuery, one example being the magnificent sculpture on the pediment at the Mansion House for the elder Dance. About 1750 he entered into full practice, as an architect, and until 1783 was engaged on a vast number of works. Stone Buildings, Lincoln's Inn Fields, was begun in 1756. Both Taylor and his successful contemporary James Paine (1716-89) gained mastery in their work as time went on, and it is curious to note that the work of both was developing towards the attenuated elegance characteristic of the work of the Brothers Adam, some time before the Scotsmen descended on London. Both were striving to master that subtlety and rich simplicity which in itself is the keynote of academic architecture; they were keenly appreciative of texture values, and in the case of Taylor he was assiduous in the selection of ornamental detail. One of the finest of the many country mansions erected by Paine is Brocket Hall at Stanborough, Hertfordshire. In 1780 he designed and erected Richmond Bridge, which was followed by the bridge at Chertsey and old Kew Bridge.

By 1760 Chambers (1726-96) was well on the way to establishing his reputation as a great artist. The star of Roman Palladian architecture was to shine with even greater brilliancy; the myriad lights kindled by the decorations of the Brothers Adam were not yet in existence. The age became more polished and refined; the architecture, as a natural sequence, reflected the life and customs of the day. The divergence between the works of the pioneers of the Roman Palladian School and the elegant style of the Brothers Adam was held in check by the unaffected and vigorous masculine style practised by Sir William Chambers, who refused to descend from his pedestal to pander to the taste of ultra-fashionable clients. In this regard Chambers remained a staunch champion of the grand or monumental school, while Adams formed the opposing camp of the elegant and ornamental faction. Within certain specific bounds and each within his own sphere, both divisions of opinion were productive of magnificent buildings.

In 1776 Chambers, then in his fiftieth year, was directed as Surveyor-General to the King's Works to prepare plans for public offices on the site of Old Somerset House, and to include accommodation for the Royal Academy, the Royal Society, and certain other Government Departments. For this work he received £2,000 a year during the time of its erection. The collection of the original plans, details, and working drawings now preserved in the Soane Museum bear witness to his tireless energy. In this building Chambers achieved the greatest architectural triumph of the Roman School. Despite various defects, it is an unrivalled example of dignity and fastidious taste. The exquisite character of the carved decorations which adorn every part reflect alike the refined taste of the architect who selected the motif, and the loving care of the sculptor who carried the idea into effect. Chambers understood to a nicety the true relationship of the architect to the sculptor, and employed the latter to decorate the building at points of focal interest. Many of the renowned sculptors of the day lent their talents for the embellishment of the structure.

Thomas Hardwick, a pupil, in a memoir of the accomplished architect, said: "To Sir William Chambers we are indebted for many improvements in the interior decoration of our buildings. He introduced a more graceful outline, an easy flowing foliage, and an imitation of such flowers and plants and other objects in nature as were best adapted to the purposes of architectural ornament."

The views of Chambers on the importance of travel to an architect are well known. "Travelling," he wrote, "rouses the imagination; the sight of great, new, or uncommon objects elevates the mind to sublime conception."

James Gandon, the talented assistant of Chambers, was born in 1742. At the age of twenty-two he commenced practice. He proved himself to be a worthy successor to

the style advanced by his master. He found very little of architectural interest in Dublin when he accepted the invitation from the powerful Beresford family to go to Ireland; but, fighting every difficulty, including a truculent Corporation who overthrew his walls as they were built at the Customs House, Gandon established the Neo-Classical so firmly on Irish soil that in the work to-day the influence is still apparent, and his teachings are still revered.

LECTURE VI.

THE ZENITH OF THE GEORGIAN ERA, 1760-1820.

The sixty years' reign of George III. reveals one long account of progress, consolidation, and reform.

Every architect at that period in practice was moved by the accurate researches made among the ruins of Hellenic splendour by Stuart and Revett, and the publication in 1762 of the first volume of the "Antiquities of Athens" caused a widespread desire for Greek finesse. But this only affected detail. As regards composition, the Palladian vernacular was too logical, too deeply rooted, to submit to abrupt change. In no other architect's work did the delicacy of Greek detail manifest itself to the extent found in the works of the Adam Brothers, yet it is a curious sort of Greek detail. For this, as well as for other more stringent reasons, the work of the ingenuous Scotsmen must be regarded as forming part of the climax attained by the Palladian exponents.

The works of the Brothers Adam have been subjected to much senseless criticism since Ralph led the attack in the eighteenth century. Few have taken the trouble to inquire into the merits of their architecture, or even to ascertain if any such exist. Yet we find that the Brothers introduced a greater refinement into the aspect of the London streets: they revolutionised the planning of houses, they brought the system of Classic vaulting to perfection, and were among the first to realise the necessity for a vista in the architectural treatment of a series of dissimilar rooms. They planned exceedingly well, they planned both for comfort and taste. Applied in moderation, their system of ornament is of a charming character, and considered in relation to the delicate tinting of wall surfaces, then the mode, it is perfectly appropriate. The beauty of the Adam manner is to be found alike in the splendid consistency of taste which not only directed the shaping of an apartment, but which extended to the design of the minutiae with which the room was appointed. There are upwards of 8,000 original sketches in the Soane Museum, all from the pencils of Robert and James Adam.

Robert Adam (1728-92) had the courage to descend upon London at a period when Lord Bute was in power, and at a time when the very name of Scotland was loathed. He entered upon the risky paths of building speculation, and although at one time nearly involved in ruin, by means of a public lottery retrieved his position. In this way Stratford Place, Oxford Street, Portland Place, Mansfield Street, Manchester Square, Fitzroy Square, Charlotte Street, and the Adelphi were erected. In the Mayfair district it is scarcely possible to traverse more than a few yards without coming across fresh evidence of the Scotsmen's activity. The very needs of such building speculations demanded economy in materials. Portland stone was too expensive, so Adam introduced Liardet's patent cement, which blended harmoniously with the fine London stock brick. It would be next to impossible to name any other buildings belonging to the late eighteenth century which possess such charming qualities of texture values. To the cultured eye the contrast of brick and stucco is delightful and refined: in addition it should be noted that the buildings erected by the Brothers Adam in Portland stone are distinguished by the marble-like surface of the stone—an effect gained by careful polishing.

The publication of Adam's "Works in Architecture," as well as the large number of craftsmen educated under their guidance, was productive of a vast number of minor activities throughout the country, tangible evidences of which are apparent to-day.

The works of the Woods of Bath, of Carr of York, of Sir Robert Taylor and James Paine were all tending to the same elegance of manner as that produced by the Brothers Adam. Contemporaneously there arose another group who, without blindly following the originators, joined in the conquest of the world of fashion. Thomas Leverton was one of the foremost. Their work, without being an actual copy, followed the main characteristics of Adams' work.



A SIDEBOARD.—By H. GOODMAN.

Hitherto it has been the somewhat erroneous practice to attribute the individual manner of the Adam Brothers to their study of Diocletian's Palace at Spalato. This on investigation proves to be wrong. The real secret of Robert Adam's source of inspiration is to be found in the drawings of Andreas Coner. Of this accomplished Italian artist little is known except the fact that he flourished at the beginning of the sixteenth century and died in 1527. His collection of drawings was purchased by Robert Adam in Italy, and after Adam's death Sir John Soane acquired it. Coner's drawings are a summary of Adam's more sober manner. Turning over these priceless sheets we feast on scraps of Roman planning, on delicious ornament, and other attributes of antiquity, drawn with an eye to freshness and vivacity.

Although the works of the Adam Brothers never quite attained to the monumental dignity of the work evolved by the masters of the Monumental manner, the two architects, nevertheless, achieved considerable triumphs. In the first place they enriched and improved London street architecture, combining terraces of houses into novel compositions. In regard to planning they imparted academic distinction to every problem of domestic architecture which was presented to them. Their system of decoration was often carried to an extreme, but it invariably exhibits a distinctive charm which the modern reproducer of their work finds unattainable. Their application of the system of Classic orders was so refined as to result, especially in the case of external architecture, in a loss of impressiveness.

The names of the lesser contemporaries who followed the lead of these talented architects are legion.

While Chambers and the Brothers Adam were about to enter into successful practice, the younger Dance (1741-1825) was beginning his travels in Italy. We find him at Parma in 1763 gaining the gold medal of the Academy of Fine Arts for his design of a public gallery for painting and sculpture. Dance returned from his Italian tours to England in 1764. His own drawings show him to have been a man of great artistic ability; he had recourse to Piranesi's etchings for inspiration, but adhered closely to the Roman Palladian system of composition. Old Newgate Prison and the Sessions Court at the side make his finest achievement; they were carried out between 1770 and 1778 at a cost of £130,000. In this structure the problem

presented to the architect was one of extreme difficulty; a collection of cells, exercise yards, and offices, had to be screened from the public gaze by means of a wall 50 feet high and nearly 300 feet long. Dance evolved an architectural screen of such superlative merit and of such a poignant character as to mark him as a giant among his contemporaries. For sheer architectonic value, the grim screen wall of Old Newgate has never been surpassed. Alas! what a caricature of taste usurps its place.

HOUSE DRAINAGE LAW.

At the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Monday last, the 1st inst., Mr. W. Addington Willis, LL.B., gave the last of three Chadwick Public Lectures on House Drainage Law. The lecture was entitled "The Combined Drainage Problem."

The lecturer used the term "combined drainage" in a wider sense than usual, so as to include joint drainage found in the provinces. He first reminded the audience that both in the provinces and in London the union of two drains *prima facie* constituted a sewer, and that this might exist on private property. He then pointed out that the metropolitan definition of "drain" included a combined drain which had been ordered or approved by a local authority since 1848.

The combined drainage, either in the provinces or in London, might have been made unlawfully, and it was necessary to see the general effects of this.

A person cannot take advantage of his own wrong; consequently as between a wrongdoer and the Council an unauthorised connection does not constitute a sewer. The same principle applies to the successor in title of the wrongdoer other than a purchaser for value without notice.

As between an innocent purchaser for value and the authority, the former is not estopped from alleging that the unauthorised pipe is a sewer, even though the purchaser has not made any special inquiry as to the drainage. Mr. Justice Channell has expressed the opinion that some day the Courts may hold that the unauthorised pipe, even in the hands of an innocent purchaser for value, is a drain and not a sewer.

As between private individuals, the trespass or wrongful act of the one cannot affect the rights of the other without his consent, and the lecturer considered the position which



A WARDROBE.—By H. GOODMAN.

existed between the freeholder and the lessee when the latter had been guilty of an attempt to convert a drain into a sewer.

He next proceeded to explain the effect and application in the provinces of Section 19 of the Public Health Act, 1890, pointing out that the decision of the House of Lords in *Wood Green U.D.C. v. Joseph* had cast some doubt on the correctness of some of the previous decisions.

The limitation of this section to single private drains which serve houses belonging to different owners, and excluding those which drain houses belonging to the same owners, is incomprehensible.

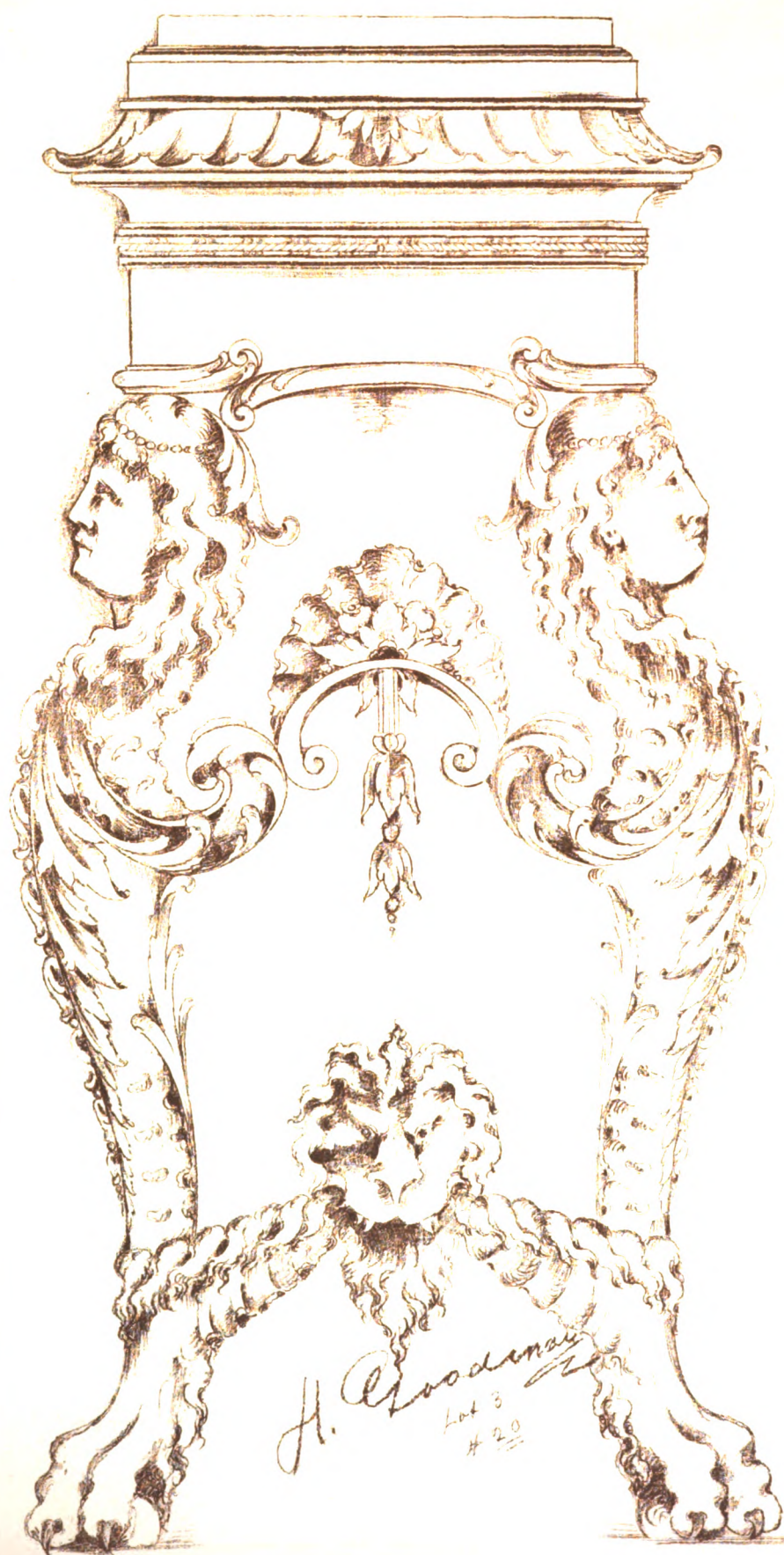
The section only relates to the liability to repair. It does not re-convert the pipe into a drain. This should be noted when there is a sale of land under an open contract, because the existence of a "single private drain" will make it impossible for the vendor to convey all that he has contracted

to sell, and it will not avail him to show that the Act of 1890 has been adopted so as to cast the liability to repair on the owners.

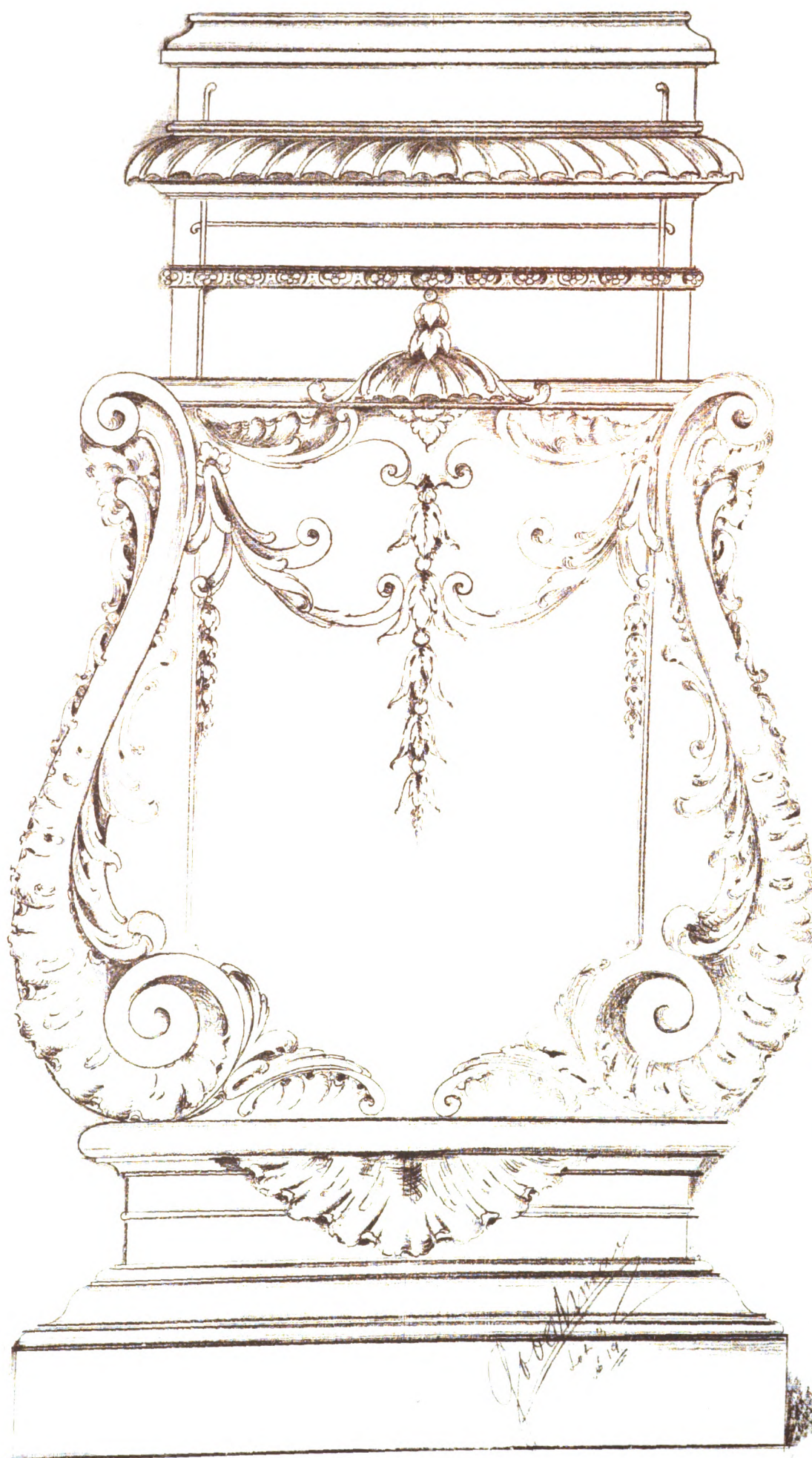
Discussing the combined drainage problem as it exists in London, the lecturer showed that the onus of proving the pipe in question is an authorised combined drain is upon the persons alleging it. They must prove that the drainage has been authorised by one of the authorities mentioned in the statutes, and all joint drains created before 1848 must be sewers.

The order authorising the combined drainage need not be a formal order, but there must be sufficient evidence from which it can be inferred that the authority themselves had approved the drainage. It is not necessary to produce an approved plan, but other documentary evidence may suffice.

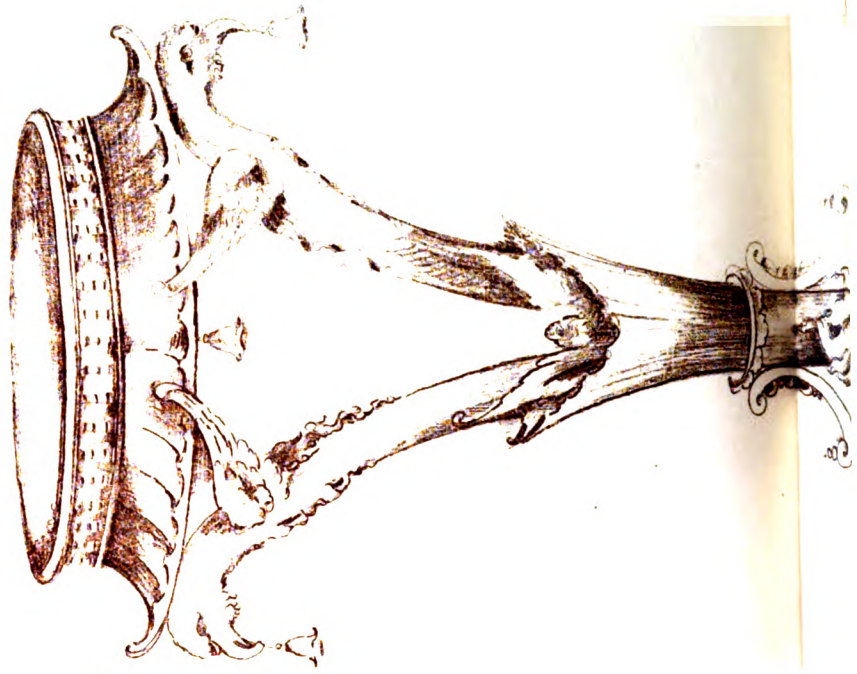
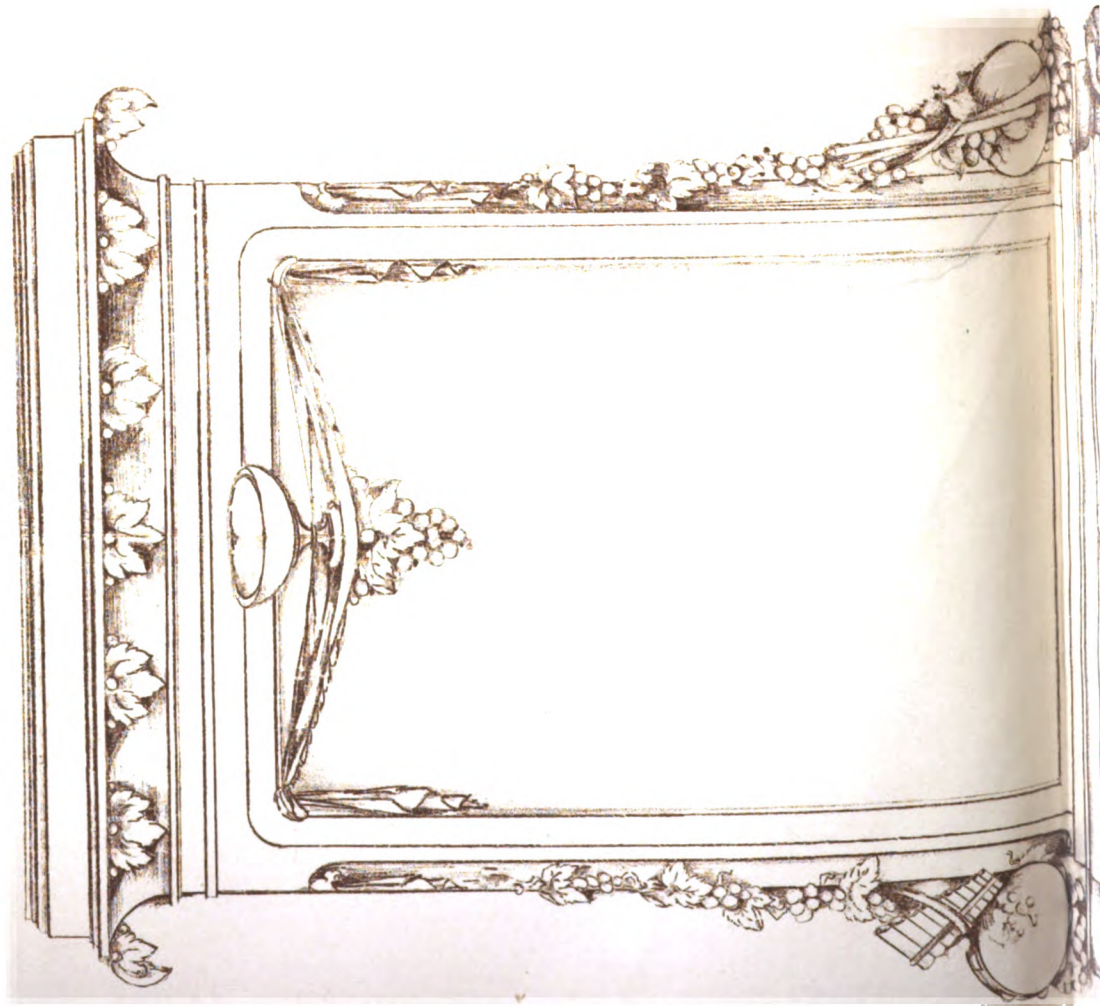
Even the proof of an order may not determine the matter,

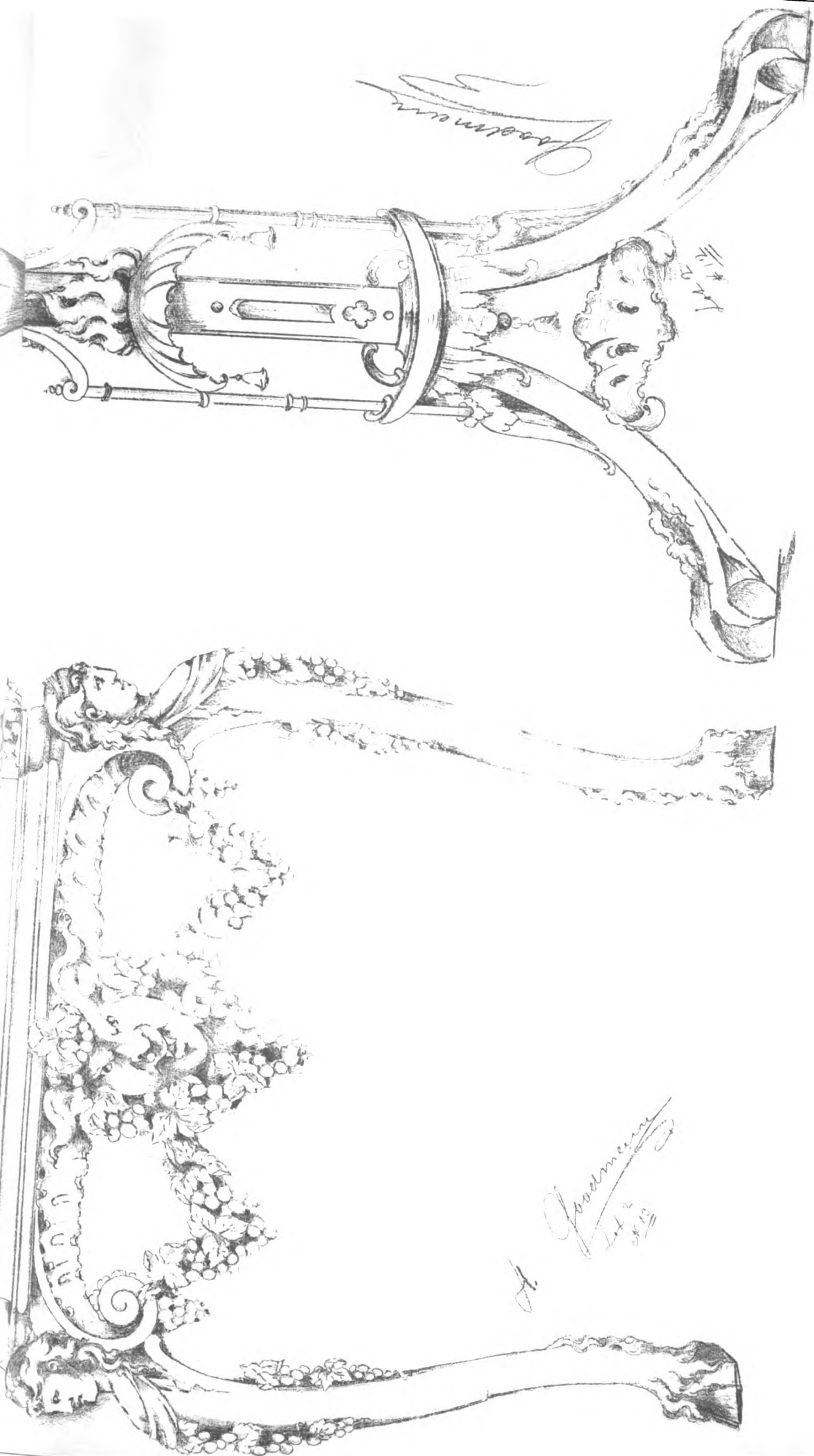


pl. 5th 1913.



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

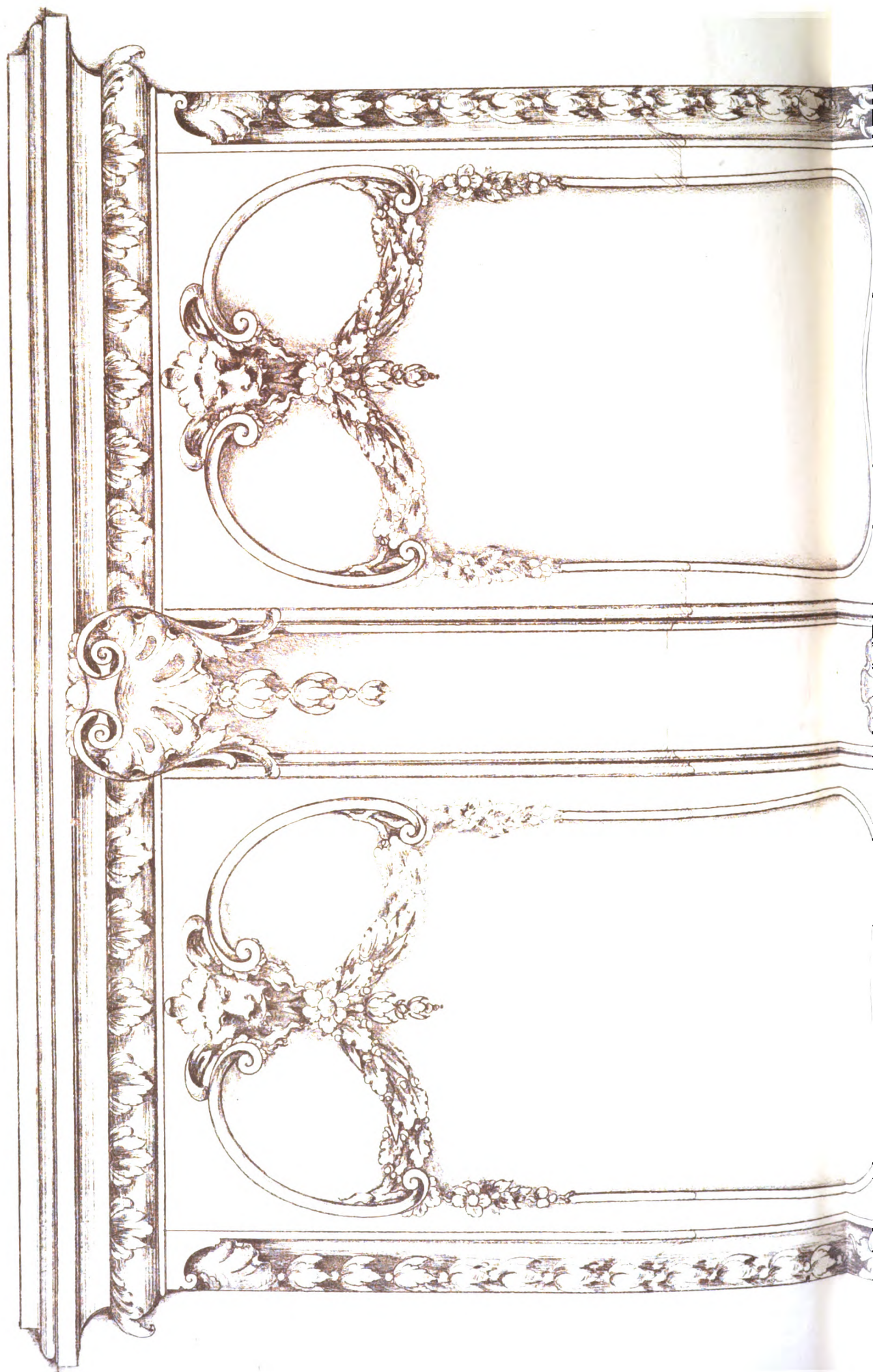




BACCHUS WINE CABINET AND CHINESE CHIPPENDALE PEDESTAL.
Designed by Mr. H. GOODMAN

N.Y. PHOTO. SUPPACUE & CO. LTD 69 1/2 DEAN STREET SOHO. W

The Architect, Dec. 5th 1913



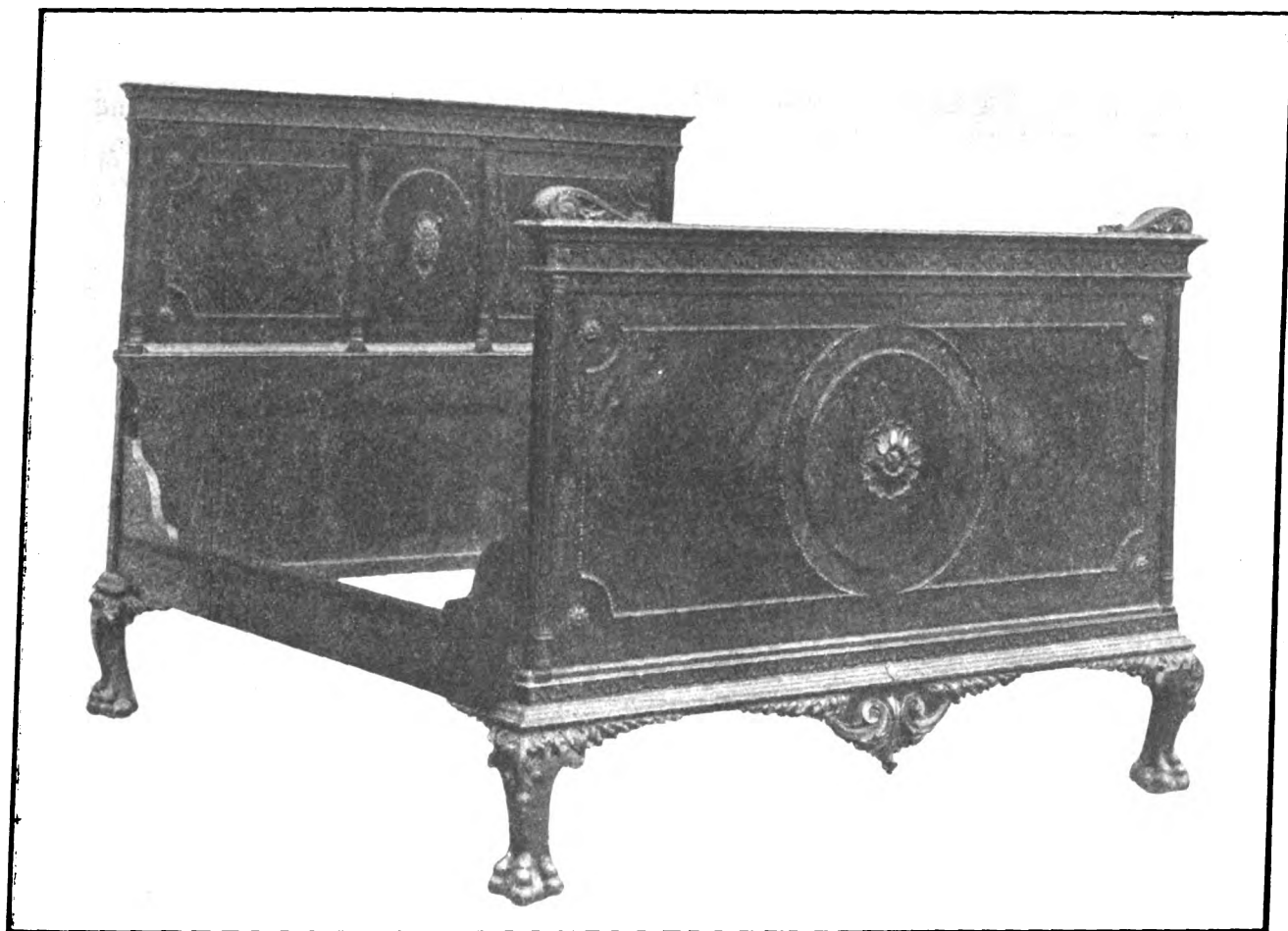


INK-PHOTO. SPRAGUE & CO. LITH. 69 & 70, DEAN STREET, SOHO, W.

GEORGIAN CABINET.
Designed by Mr. H. GOODMAN.

for
au
dra
wi
of
au
eff

au
m
oc
he
th
d
d
a
r
:



A BEDSTEAD.—By H. GOODMAN.

for it may be shown that the builder has departed from the authorised drainage in some material respect. Connecting drainage from other premises with the authorised drainage will convert the latter into a sewer, and so will the grouping of the houses in a manner not in accordance with the authorised scheme. Immaterial deviations have no such effect.

If the Council can find the person who has made the unauthorised connections, and has thereby created a sewer, they may give him notice to restore the drainage to its proper condition in accordance with the authorised scheme, and if he defaults the Council may do the work themselves. Upon this being done the drainage may be treated as a "combined drain," and the principle of "once a sewer always a sewer" does not apply to the pipe which, by reason of the wrongful act, had previously been a sewer. This is the effect of a recent case (*Kershaw v. Smith*) decided in April of this year.

The lecturer concluded by discussing the practical and financial effects of unauthorised drainage in the metropolis and the efforts which have been made to effect an alteration in the law.

THE MARY CURZON HOSTEL FOR WOMEN.

THIS building, erected from the designs of Messrs. Lovegrove & Papworth, 374-8 Old Street, E.C., as a model common lodging-house for women, by the Duchess of Marlborough and Earl Curzon of Kedleston, in memory of the late Lady Curzon, was formally opened by her Majesty Queen Alexandra on Saturday, the 22nd ult.

The building is in King's Cross Road, close to King's Cross, and consists of three upper floors of bedrooms and cubicles, apartments for the matron, store-rooms, and linen cupboards. The entrance floor, raised slightly above pavement level, contains the office, the large general kitchen and dining-room, the general scullery, the "day-room," which serves as a sitting-room, and lavatories and water closets. In the basement are bathrooms, steel-locker room, laundry-changing and drying-rooms, the heating chamber, and the bundle-room. A feature of the lavatory accommodation is the provision of a number of enclosed "cabinets" containing a foot-bath and lavatory basin.

The building is constructed of fire-resisting materials throughout, all the floors are covered with jointless flooring, and the walls up to the first floor level are lined with glazed bricks or tiles, above with plaster painted with a dull stippled finish.

The need for such an institution, which is the first of its kind, was shown by the rush of prospective lodgers, who have filled the building without any advertising whatever having been necessary, so that, apart from capital charges, it is easily paying its way.

The general contractors were Messrs. John Grover & Soh, Wilton Works, New North Road; steelwork by the Aston Construction Co.; lifts by Messrs. J. E. Lucas & Son; heating and stoves by Messrs. Rosser & Russell, Teale Fire-place Co., and Messrs. Clark Hunt; and sanitary goods by Messrs. Nicholls & Clarke.

MR. LEWIS BAUMER'S ART.

LONDONERS will all agree that this exhibition is another triumph for the Fine Art Society, and large numbers are sure to flock to the galleries in New Bond Street, in order to gaze, admire, and have a pleasant laugh. Opinions may differ as to the merits of Mr. Baumer's *Punch* contributions, and admirers of Du Maurier and Reginald Cleaver may sigh for the lost grace and the lost beauty of facial expression, but we think that there must be general accord as to the cleverness of the work and its humorous adaptation to modern tendencies. Where the artist shines, however, is in his colour illustrations to "Vanity Fair"; he gives us a perfect realisation of the fascinating Becky with the straw-coloured hair and the pretty little brunette, Amelia. Miss Crawley is reproduced *à merveille*, and if the drawing of the trio of young bucks (George, Jos, and Rawdon) is suggestive of less youth than the story denotes, probably the fashion of dress is largely accountable. The "noble" marquis is well conceived, and so too are the various incidental figures.

We referred to Du Maurier and Reginald Cleaver, but we are bound to say that Mr. Baumer's technique is more direct than that of the two artists mentioned; whether or not this is necessarily a merit may be debateable. In

PEN-YR-ORSEDD

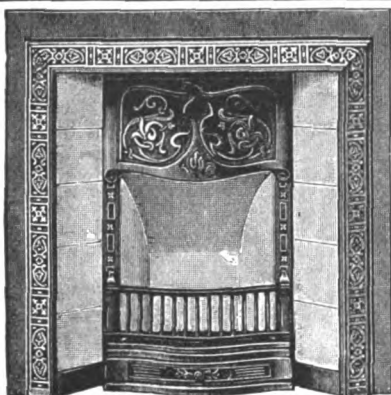
Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

SLATE QUARRY CO., Ltd.,

Supply Best and Seconds Red and Purple

SLATES

TO MERCHANTS AND THE TRADE.

**Fletcher, Russell & Co., Ltd.**

Manufacturers of

MANTELS, OVERMANTELS, COMBINATION MANTEL
REGISTERS, SQUARE REGISTERS and INTERIORS
WITH BRASS or COPPER CANOPIES, GAS and COAL
RANGES, YORKSHIRE RANGES, CURBS, LAVATORY
STANDS, GAS STOVES, GAS COOKING RANGES,
RADIATORS, WORKSHOP AND LABORATORY
APPLIANCES, &c.

WARRINGTON:
Palatine Works.MANCHESTER:
130-132 Deansgate.LONDON:
134 Queen Victoria St.BRUSSELS:
20 Rue T'Kint.**W. M. DUNCAN TUCKER & SONS, LD.**TELEPHONE
TOTTENHAM.**TOTTENHAM. N.**TELEGRAMS
"HORTICOLE
LONDON"

JOINERY OF EVERY DESCRIPTION
MOULDINGS TO ANY DESIGN

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll. Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 " Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs. Triple-ply - 90 lbs.
Double-ply - 65 lbs. Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

"Invaders of Debrett" (1) we greatly admire the foreground lady, seated with her back to us; we can here admire the graceful pose and admirable sketching, and we can assume a Du Maurier beauty in place of a Baumer nightmare. How any artist who can present us with such a charming Becky, such a pretty Amelia, such an attractive Columbine can also provide such society caricatures it is hard to understand. In the "Vanity Fair" illustration of Miss Moss, this unfashionable damsel is shown altogether too dainty and attractive. Enough! Let it suffice to say, in conclusion, that our interest in the exhibition does not end with one inspection of the ninety-one sketches on view.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Beaconsfield.—Thirty-four working-class cottages, for the U.D.C.

Marsh Gibbon.—House, for Mr. Heritage.

Swanbourne.—Council Mixed School: alterations.

DEVON.

Exeter.—Hostel, Gras Lawn (accommodation for sixty men students) (£12,400). Messrs. Garratt & Simister, architects, Norwich Union Chambers, Congreve Street, Birmingham.

Plymouth.—Public School.

DURHAM.

Chopwell.—Alterations at Conssett Iron Co.'s old offices, for Blaydon Council.

Gateshead.—Electric sub-station, West Dunston. Mr. W. Bell, architect. Messrs. Fenwick & Co., contractors, Northumberland Road, Newcastle-on-Tyne.

Newbottle.—"Havelock Arms" p.h.: alterations, for Messrs. R. Fenwick & Co., Ltd.

Sunderland.—Dispensary (£1,600). Mr. J. W. Moncur, Council surveyor.

Washington.—Forty-seven houses. Council surveyor.

Wilton.—Manor House: alterations, for Blaydon Council.

ESSEX.

Brentwood.—Secondary School for girls.

R.C. Schools: enlargement (£1,400).

Chelmsford.—Pair of houses, Swiss Avenue, for Mr. H. Davis.

Three houses, Swiss Avenue, for Mr. F. J. Hazelton.

Pair of houses, Coval Road, for Mr. J. Browne; also

Co-operative Stores, Wells Street: extension.

County High School: extension.

Chipping Ongar.—Cookery and Handicrafts Centre.

Dengie.—Council School: enlargement and alteration.

Epping.—Special Subjects Centre. County architect.

Messing and Purleigh.—Council Schools for 120 and 160 places respectively.

West Ham.—General Hospital: nurses' home (£2,500).

HAMPSHIRE.

Basingstoke.—Sarum Hill School: additions and alterations. Mr. A. L. Roberts, architect, The Castle, Winchester.

Bournemouth.—Christ Church, Westbourne.

Portsmouth.—St. Joseph's R.C. Church, Copnor: completion.

Municipal School, North End. Mr. A. E. Tutte, architect, 58 London Road.

Totton.—Council School for 100 places.

HEREFORDSHIRE.

Colwall.—Six working-men's cottages (£1,200). Mr. T. Armstrong, architect.

KENT.

Gravesend.—Picture Palace, Overcliffe and Stuart Roads, for National Productions, Ltd. Messrs. Bridgland & Clay, A.R.I.B.A., architects, 28 King Street.

Queenborough.—Council School (£4,000). Mr. W. H. Robinson, architect, Sessions House, Maidstone.

Tunbridge Wells.—King Charles the Martyr's Church: parish hall. Mr. S. Philpot, architect, 65 High Street. Mr. T. Bates, contractor, Nevill Terrace (£2,900).

LANCASHIRE.

Bolton.—Post Office, King Street. H.M. Office of Works. Public Health Offices, Howell Croft: alterations for tuberculosis dispensary. Borough engineer.

Ormskirk.—Sanatorium: extension. Mr. J. Dod, architect, Exchange Buildings.

MIDDLESEX.

Ealing.—Isolation Hospital: administrative block extension. Mr. W. E. Hicks, A.M.Inst.C.E., Borough engineer.

Southall.—Public Elementary School for about 250 places.

MONMOUTHSHIRE.

Blackwood.—P.M. Church, Oakdale. Mr. A. F. Webb, architect, High Street.

NORFOLK.

Norwich.—Church, St. Luke's, New Calton. Sir A. Blomfield & Sons, F.F.R.I.B.A., architects, 6 Montagu Place, London, W. Messrs. J. Youngs & Son, contractors, Chapel Field Road.

NORTHAMPTONSHIRE.

Northampton.—Doddridge Memorial Sunday Schools, St. James'.

Rushden.—Council Schools, Alfred Street: rebuilding.

NORTHUMBERLAND.

Newcastle-upon-Tyne.—Public Elementary School, Walker Road, for 400 places.

Telephone Exchange, corner of Pilgrim Street and City Road.

NOTTINGHAMSHIRE.

Mansfield.—The Forest Hospital: pavilion for twelve beds, and other works.

Retford.—Drill Hall, Exchange Street, for the Army Council (£3,000).

Stapleford.—Electric power station, Nottingham Road, for the Derbyshire and Notts Electric Power Co.

SOMERSET.

Bath.—West of England Institution for the Blind: proposed increase of school accommodation for another 30 places (£2,300).

STAFFORDSHIRE.

Gnosall.—Council School for 100 infants, &c.

Longton.—Infants' Council School, &c. (£1,600).

Pelsall.—Infants' Council School for 258 places.

Ravensley.—One hundred workmen's dwellings, for the Cannock and Rugeley Colliery Co.

Walsall.—Workhouse: proposed enlargement (£7,000).

West Bromwich.—"George Salter" Council School, Greet's Green.

SURREY.

Chiddingfold.—Church Mission Hall, Fisher Lane.

Guildford.—Three houses, Walnut Tree Close, for Mr. G. Stredwick.

SUSSEX.

Burgess Hill.—St. John's Institute: proposed alterations and improvements.

WARWICKSHIRE.

Birmingham.—Council School, corner of Nansen and Naseby Roads.

WORCESTERSHIRE.

Cow Honeybourne.—Ten Council houses, for Pebworth R.D.C.

Kidderminster.—Holy Innocents' Church (for 300 sittings).

Pebworth.—Ten Council houses (£1,480).

Stourbridge.—Electric Theatre, High Street, Lye. Mr. H. E. Folkes, architect, Waterloo Buildings, Stourbridge.

YORKSHIRE.

Hoyland.—Ten municipal houses, King Street.

Hull.—Picture Palace, Beverley Road. Messrs. Wellsted, Dosser (A.R.I.B.A.) & Wellsted, architects, Alfred Gelder Street.

Idle.—Laundry, Croft Street. Mr. J. T. Cordingley, architect, Town Lane, Thackley.

Malton.—Drill Hall, Green Gate, for "H" Co., 5th Batt. Yorks. Regiment.

Rawtenstall.—Post Office, Kay Street.

Thirsk.—Cinematograph Theatre, Long Street, for Mr. J. Bell.

Tickhill.—Church: restoration (£1,200).

WALES

Aberdare.—Police Court.

Aberporth.—Bungalow. Mr. J. T. J. Williams, architect, Napier Street, Cardigan.

Bargoed.—Police Station: additions and alterations.

The EXPANDED METAL CO., Ltd.,

Telephones:-- Head Office: YORK MANSION, YORK ST., WESTMINSTER, S.W. *Telegrams:--*
Victoria 1514, Gerrard 819. Works: STANTON WORKS, WEST HARTLEPOOL. *"Distend, Vic., London."*
 Telephones: West Hartlepool 94 (2 lines).

Patentees and Manufacturers of

EXPANDED METAL

For Reinforced Concrete and Fire-Resisting Construction.

**EXPANDED STEEL SHEET AND BAR
REINFORCEMENT**

for CONCRETE.

"EXMET" REINFORCEMENT
for BRICKWORK.

EXPANDED METAL LATHINGS
for PLASTER.

EXPANDED METAL SHEETS
for FENCING, DIVISIONS, GUARDS,
VENTILATORS, LOCKERS, BASKETS, &c.

PLEASE WRITE FOR ILLUSTRATED HANDBOOKS AND PRICE LISTS.



THE SCOTTISH NATIONAL EXHIBITION, GLASGOW, 1911—THE PALACE OF HISTORY.
 Timber Framework and Cement Plaster on Expanded Metal Lathing.
 Messrs. Walker & Ramsay, Glasgow, Architects. Published by permission of Messrs. T. & R. Annan & Sons, Glasgow, Official Photographers.

106 NEW BOND STREET:
 Telephone: 2994 Mayfair
 Telegrams: "Surpass, London."

SOUTH NORWOOD:
 Telephone: 1063 Croydon.
 Telegrams: "Smisurate, London."

JAMES SMITH & SONS (NORWOOD) LTD.

106 NEW BOND STREET, W., and
 JUNCTION WORKS, SOUTH NORWOOD, S.E.

Builders and Decorators.

Every description of Alterations,
 High Class Decoration, Plumbing,
 Drainage, Heating and Electric
 :: Light, Bells, Gas, etc. ::

ESTIMATES FREE.

BEDFORD LEMERE & CO.

Architectural & Technical Photographers,

147 STRAND, LONDON, W.C. (First floor).

PHOTOGRAPHS
 TAKEN AND PROOFS
 DELIVERED SAME
 DAY. PRICE LISTS
 & ESTIMATES FREE.

Established 1862.

TELEPHONE 4258 CENTRAL

SCAFFIXER

THE PATENT RAPID-SCAFFOLD TIE CO. LTD.
 • 124 VICTORIA ST. WESTMINSTER •



TELEPHONE
 6030 WESTMINSTER
 TELEGRAMS
 "SCAFFIXER" LONDON
 CODE "A-B-C" (5th EDITION)

A LIST OF ART PLATES published in "The Architect"
 will be forwarded on application to Gilbert Wood
 & Co., Ltd., Imperial Buildings, Ludgate Circus, E.C.

WALES—continued.

Berwyn.—Council School (for about seventy places), Eirianallt C.M. Chapel.

Llandudno.—Twenty-four working-class cottages, King's Road, for U.D.C.

Pembroke.—East End Council School: additions and alterations. Mr. K. McAlpin, architect, Pembroke Dock.

Town Hall: extension.

Pontardawe.—Police Court.

Pontlottyn.—Police Station.

Port Talbot.—Picturedrome, Aberavon, for Mr. J. Rees.

Mr. F. B. Smith, architect, St. Oswald's Chambers.

Rhos.—150 working-class houses.

Treharris.—Chapel, Beechgrove cemetery: rebuilding, for Merthyr Tydfil County Borough.

Wrexham.—Thirty workmen's cottages, for U.D.C.

SCOTLAND.

Dundee.—Cottages, Muirfield Road. Mr. C. Gray, builder, Muirfield Crescent.

Picture House, Arthursstone Terrace and Erskine Street, for Mr. J. Hagan.

Warehouse, Blackheath Place, for Sir J. K. Caird.

Works, Broughty Ferry Road: additions for Messrs. Halley & Sons.

Workshop, Balfield Road, for Messrs. McGregor & Balfour, Ltd.

Workshop and store, Balfield Road, for Messrs. J. Raitt & Co.

Edinburgh.—Goods Office, &c., St. Mark's Place, Portobello, for N.B.R. Co.

Forfar.—Model lodging-house: extension.

Fort William.—Buildings, High Street, for ex-Provost Macfarlane.

Glasgow.—Baths and washhouses, Nelson Street, for the Corporation.

Electric sub-station, near Netherton Road, Temple, for Messrs. Hurrell, Ltd.

Two self-contained lodgings, Mirrlees Drive, Kelvin-side. Mr. J. Smellie, builder, South Street, Whiteinch.

IRELAND.

Ballina.—Town Hall.

Faragh (Co. Roscommon).—Franciscan Monastery: additions and alterations. Messrs. Doolin & Butler, architects, 27 Dawson Street, Dublin.

Newtown Butler.—Rectory. Mr. Potts, C.E., architect, Greenbank, Clones.

PATENT SPECIFICATIONS PUBLISHED
NOVEMBER 27, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 22,331. Oct. 1, 1912.—Capt. F. T. Arnold, of the U.S. Army, New London, Conn., U.S.A. Mixing machines for concrete mortar.

22,546. Oct. 3, 1912.—A. F. Berry, 27 Woodfield Road, Ealing. Apparatus for heating water.

24,953. Oct. 31, 1912.—F. A. Wilkinson, The Meadows, Hatfield, Herts. Fittings for electric-light apparatus.

25,140. Nov. 2, 1912.—J. R. Gwyther, 21 Booth Avenue, Withington, Manchester. Construction of reinforced concrete columns, struts, beams, and other concrete structures, applicable also for fireproofing structural steel or cast-iron stanchions and the like.

25,466. Nov. 6, 1912.—E. Jones, c/o Dring & Fage, 56 Stamford Street, S.E., and J. A. Wade, Bank Chambers, Bootle, Liverpool. Slide rule for calculations in measuring and pricing timber; and 25,467, Nov. 6, 1912.—Measures for use in ascertaining the contents of timber.

27,254. Nov. 27, 1912.—Frederick Tyers, 383 Mansfield Road, Notts. Tools for cutting rain-water gullies and pipes.

29,649. Dec. 24, 1912.—M. J. Adams, Fireclay Works, Scotswood-on-Tyne. Water supply for cisterns.

1,079. Jan. 14, 1913.—The Shark Grip Tile Co. (1910), Ltd., and Thos. White, both of 2 Church Row, Limehouse. Glass and other tiling.

3,920. Feb. 15, 1913.—John Glen, 26 Wallace Street, Grangemouth. Combination drawing tool or instrument.

12,172. May 26, 1913.—Verney Binns, 13 Leeds Old Road, Bradford, and John Binns, Park Royde, Eccleshill, Bradford. Fireback and like boilers.

5,450. March 4, 1913.—W. G. Kent, 199 High Holborn. Means for measuring the flow of a fluid through a pipe.

5,548. March 5, 1913.—H. R. Brain, 37 Orchard Place, Blackwall, E. Tank for heating water.

7,953. April 4, 1913.—Dated under International Convention July 19, 1912. Charles V. Thierry, 48 rue de Malte, Paris. Process of and apparatus for use in manufacturing zinc.

9,128. April 18, 1913.—Joseph Payne, Crich, near Matlock. Device for piercing slates.

10,403. May 2, 1913.—Dated under International Convention May 3, 1912. Camille Arpin, 23 rue Michel-le-Comte, Paris. Apparatus for heating water and other liquids by electricity, particularly applicable as a bath heater.

12,989. June 4, 1913.—Joseph Winterflood, 22 Alexander Road, Finsbury Park, N. Geysers, water heaters, and the like.

13,738. June 13, 1913.—South Metropolitan Gas Co. and Dean Chandler, all of 709 Old Kent Road, S.E. Burners for gas fires.

14,391. June 21, 1913.—Konrad Rapp, and Max Rape, Mannheim, Germany. Apparatus for mixing and straining oil paints and other like purposes.

15,683. July 7, 1913.—The Kinnear Manufacturing Co., Columbus, Ohio, U.S.A., and A. L. Gibson, Radnor Works, Strawberry Vale, Twickenham. Rolling shutters.

15,817. July 9, 1913.—Herbert Woodhouse, 77 Nursery Street, Wicker, Sheffield. Apparatus for extinguishing and preventing the spread of fire in theatres and like buildings.

19,383. Aug. 27, 1913.—Dated under International Convention Sept. 3, 1912. Hippolyte Maugras, 1 Boulevard de la Liberté, Chantenay-Nantes (Loire-Inferieure), France. Generation of air gas.

19,424. Aug. 27, 1913.—Dated under International Convention Aug. 27, 1912. Emil Siebott, architect, 2 Erbacherstr., and Wm. Lendle, 14 Niederwaldstr., Wiesbaden, Germany. Mortise locks for closets and like doors.

19,582. Aug. 29, 1913.—Christian Muller, 46 Tuckingerstr., and Michael Gierlich, 25 Salzstr., Neuss-on-Rhine, Germany. Device for operating fanlights.

29,153. Dec. 18, 1912.—Dan Murphy, 52 Ashburnham Road, Greenwich. Pneumatic locks and bolts.

10,271. May 1, 1913.—A. B. Neiman and C. M. Adamson, 182 Centre Street, New York. Steam or hot water radiators.

12,498. May 29, 1913.—G. A. Weech, 61 Maudlin Street, Bristol. Safety clutch for extension ladders.

16,147. July 12, 1913.—Dated under International Convention July 27, 1912. C. W. Hutchinson, 8 Badeau Place, New Rochelle, Westchester, New York. Window-shade fixtures.

6,179. March 12, 1913.—Louis Dautroppe, 242 Chaussee de Waterloo, Brussels. Process and apparatus for impregnating wood.

Any of the above specifications may be obtained from J. D. Roots & Co.



(The Editor will not be responsible for the opinions expressed by Correspondents.)

Presidential Address to the R.I.B.A., Nov. 3, 1913.

SIR,—In the above address the recent newspaper articles by Mr. March Philipps were discussed. The President thought that Mr. Philipps was one-sided in his eulogy of Gothic architecture, and in his displeasure at modern architecture. Indeed, Mr. March Philipps said that no architecture has been good for about 300 years. The President pointed out defects of Gothic architects, drawing attention to that wonderful and ambitious choir at Beauvais, and to other faults in pre-Tudor architecture.

But there is something to be said on both sides. That is, there was good work produced by the Gothic architects, and certainly good work has been produced since—in fact, noble work.

Gothic architects failed because they were too ambitious or careless. I think that architects became just as careless in the time of James I., probably not in construction, but certainly in design. Anyone living in a Jacobean house, as I do, cannot think otherwise. As I write I have before me a chimney-piece with bulbous columns which no one

Tel. Nos.: {Cheltenham, 798 & 799
London, North 2165.

Glasgow, P.O. Central 979.
Manchester, Central 5416.

Telegrams: {Sunningend, Cheltenham.
Sunningend, London.

H. H. MARTYN & CO., Ltd.

CARVERS

And Architectural Decorators.

250,000 feet of Dry ENGLISH OAK in stock.

BRANCHES

LONDON: 192 ALBANY STREET, N.W.
GLASGOW: 30 GEORGE SQUARE.

MANCHESTER: 6 SOUTH KING STREET

Head Office: Sunningend Works,
CHELTENHAM

ASBESTONE FOR ROOFING



ASBESTONE possesses special advantages as a roofing material which deserve the careful attention of Architects and Builders. We quote five:—(1) It is very light, therefore a far lighter superstructure can be used and expense saved in that direction. (2) Unlike slate, Asbestone is not brittle, and is easily handled and fixed without risk of loss through breakage. (3) It is fireproof. (4) It is absolutely unaffected by fumes and gases and is waterproof. (5) British manufacture.

Please write for our ILLUSTRATED DESCRIPTIVE BOOKLET, specially prepared to supply necessary information and data to Architects and Builders.

The BRITISH URALITE CO. (1908), Ltd. (ROOM 17), 85 Gresham St., E.C.

"THE BEST ENAMELS FOR THE BEST RESULTS."

"ENDELLINE" & "ENDELFLAT"

Used with unfailing satisfaction wherever the finest enamel finish is required.

THOS. PARSONS & SONS,

Makers of the highest class of Varnishes and Japans for over a Century.

**315 & 317 Oxford Street,
London, W.**

can call beautiful in outline. I have long since come to the conclusion that Jacobean architecture has become popular for the fascination age has given it, and that the architecture in itself is debased.

I must confess that the charm of old work nearly transforms this style into a thing of beauty. A modern Jacobean house with the outlines the only thing of charm is the reverse of beautiful.

The most hideous house I was ever in was one costing £20,000, the woodwork of which was executed in pitchpine, and the outside in terra-cotta, all in the Jacobean style.

The modern tendency to build structures other than churches in the Renaissance style is good, but we naturally associate Gothic with ecclesiastical architecture. They are fearless men who introduce succeeding styles for church architecture.—Yours faithfully,

J. H. KERNER-GREENWOOD.

King's Lynn: Nov. 28, 1913.

Disfigurements.

SIR,—Announcements have lately appeared of the "first enforcement" of the power given to local authorities by the Advertisements Regulation Act, 1907. No doubt in each locality there is a novel sense of relief. But we have particulars of many instances in which the magistrates have, during the past two years, directed the removal of advertisements which disfigure "the natural beauty of a landscape" or the views in or from "public parks and pleasure promenades." For one case in which legal proceedings have been necessary there have been scores in which the mere knowledge of the law or an official warning have been sufficient to prevent fresh defacement.

Next year, in Westmorland, the power of general prohibition will become effective, and as the term of five years' grace allowed by the Act to existing advertisements expires in other districts for which the local authorities have been wise enough to make by-laws, the eye-sores will completely disappear.

It remains only for those who have the honour of our English, Scottish, and Irish countryside at heart to bring pressure to bear on their local authorities to avail themselves of the provisions of the Act.

Unfortunately—for reasons of Parliamentary expediency rather than from any lack of goodwill on the part of the Legislature—the Statute of 1907 gave no adequate power of protecting the dignity of city "prospects" or the quiet beauty of villages and small towns. We have good reason to hope that the Bill prepared by the Scapa Society, of which Captain Murray is in charge, will become law next session, and that means will then exist for satisfying all the reasonable requirements of local opinion.—Your obedient servant,

RICHARDSON EVANS,

Chairman of Committee of the
Scapa Society.

The Keir, Wimbledon Common, S.W.: Nov. 24, 1913.

Greater London Town Planning and Main Arterial Roads.

SIR,—At the Conference held on Tuesday last at the Caxton Hall, under the presidency of Mr. Burns, unanimous approval was expressed in regard to the proposal then made by Mr. Burns that District Conferences of Local Authorities should be held for the purpose of "deciding the character, the varying methods, and the alignment of local roads, and the cost and its division amongst the various local authorities interested."

Without doubt these District Conferences will now be called by the Local Government Board. These resolutions may be taken to represent the views of the majority of the local authorities in Greater London in the areas of unbuilt-on land beyond the London County Council area and within the fifteen-mile radius, and were agreed to unanimously at a meeting of representatives of more than forty Greater London local authorities held prior to the official Conference of Tuesday last.

The problem is one of great complexity, and as the terms of reference to these District Committees have yet to be framed I am sure you will find these regulations of interest.—Believe me to be, yours sincerely,

HENRY R. ALDRIDGE,
Secretary National Housing and
Town Planning Council.

41 Russell Square, London, W.C.: Nov. 27, 1913.

I.

That the official Conference should be divided into Sectional Conferences for the purpose of considering inter-

alia with representatives of the Local Government Board, the Road Board, the London Traffic Department of the Board of Trade, and other Government Departments:—

(a) The position, width, estimated cost of construction and maintenance of necessary main and arterial roads through their areas, and the probable date when each road will require to be made.

(b) The common points of interest in their town-planning schemes, such as (1) open spaces; (2) local inter-communication of roads; (3) allocation of areas for specific purposes.

II.

That all local authorities should be asked to include in town-planning schemes the lines of all such necessary main and arterial roads in respect of which they receive guarantees towards the cost.

As general principles governing distribution of cost between a central authority and local authorities, the following were suggested:—

(a) Local authorities should secure the provision of all necessary land for approved roads by means of town-planning schemes.

(b) A central authority should pay any compensation in respect of such approved roads under Section 58 of the Town Planning Act.

(c) Local authorities should secure construction of approved roads up to at least the maximum of by-law widths and requirements, and a central authority should pay the balance of cost of construction.

(d) That a guarantee should be given by a central authority to a local authority that the approved roads, when included in a scheme, should be continued at either end.

III.

That consideration should be given by the official Conference to the question as to what powers can be given to local authorities under their town-planning schemes for controlling the user of the various classes of roads under their schemes.

The Legality of Earth Closets.

SIR,—I have been interested in the article in your recent issues, "The Cheap Cottage," and as no other reader has adverted to the fact that at Great Baddow the local authority have prohibited earth closets being established indoors, I beg to be allowed to make some observations concerning the powers of the local authority in such cases.

In the district of rural Essex in which I live, which is not many miles from Baddow, the mere presence of a pail under a closet seat is commonly regarded as constituting an earth closet, even when there be no provision for earth to be used in it. Such places are not earth closets, and the local authority may be within their powers in prohibiting such to be placed inside a house. But I maintain that no authority has power to forbid a properly constructed earth closet being fixed inside a dwelling-house when, too, there is every reasonable expectation of its receiving adequate attention. And in the district to which I have alluded, where the by-laws are similar to those in use at Great Baddow, such earth closets are permitted, and I have them indoors and upstairs.

The Public Health Act permits earth closets being fixed wherever water closets may be fixed with the approval of the local authority (Public Health Act, 1875, cap. 37), provided that the regulations as to structure, size, and ventilation of the chamber space and so on be complied with; and, surely, it is to be accepted that, as in all corresponding circumstances, when the conditions are fulfilled, permission shall not be arbitrarily withheld.

It cannot be open to any lesser authority than Parliament to prohibit all earth closets where an Act of Parliament decrees they may be placed. Is not a local by-law inoperative that so prohibits them, seeing that Mr. Justice Day has ruled (*Yabbicom v. King*, 1899, 1 Q.B., 444) that public bodies have no more power to dispense with the law of England than private people have to dispense with it?—Yours truly,

JOHN W. LOVE,
Secretary,

Moule's Patent Earth Closet Co., Ltd.
London, W.C.: Dec. 1, 1913.

At a general meeting of the Royal Society of Painters in Water Colours last Saturday, Mr. Alfred Parsons, R.A., was chosen as President in succession to Sir Ernest Waterlow, R.A., who resigned the post for reasons of health.

Callender's Dampcourses

have gained
First Place in Specifications
by reason of
Standard Quality,
and

Ledkore

(Lead and Bitumen)

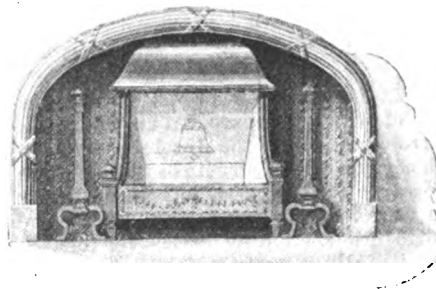
Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 2½ feet Lengths.

Send for Booklet "A" and Sample free from
GEORGE M. CALLENDER & CO., Ltd.
Contractors to Admiralty, War Office, Office of Works, L.C.C.
25 Victoria St., Westminster, S.W.

GOLD
MEDAL

"BELL" DOG GRATES

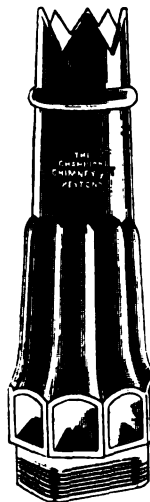


are in use in all parts of the world, and are giving absolute satisfaction everywhere; are sold under a guarantee that if they do not give perfect satisfaction to the user we will take them back, and refund the full amount paid.

Send for Lists and Testimonials.

They will cure
Smoky
Chimneys.

BELL RANGE & FOUNDRY CO., 16 BERNERS STREET, W.
And Northampton.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O. Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

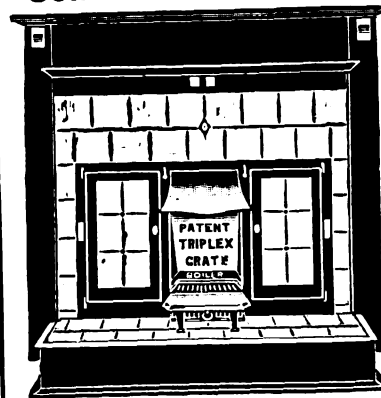
Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sowest, London." Telephone: Regent 2043.

N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.

THE "TRIPLEX" PATENT Combination SITTING ROOM GRATE



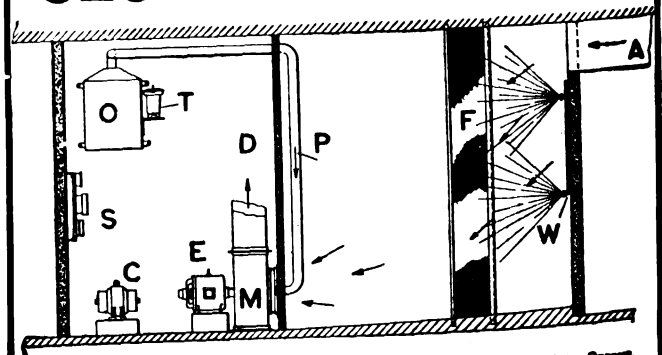
ONE FIRE does the work of the household.

You can cook in the ovens with the greatest ease. The bath water is heated very quickly, giving 2 hot baths per hour. The tiled front gives a smart appearance. No black-leading required. Entire absence of dust or dirt from the fire.

Complete Specification sent on application.

HORRELL & BOWMAN
Patentees & Manufacturers,
508-510 Moseley Road,
BIRMINGHAM.

THE OZONAIR SYSTEM OF PURE AIR VENTILATION



A—Fresh Air Inlet. E—Electric Motor. T—Transformer. W—Water Spray.
S—Switchboard. C—Converter. F—Air Filter Screen. O—Ozone Generator.
D—Air Discharge. M—Mixing Chamber and Fan. P—Ozone Pipe.

Pamphlet No. 3 on application to **OZONAIR LTD., 98 Victoria St., London, S.W.**

The Architect.

CONTENTS.

	PAGE
Bill or Charter?	541
Notes and Comments	542
London County Council	543
The Royal Academy	544
Competition News	544
Illustrations :—	
The Institution of Civil Engineers, London	544
The Architectural Association	545
Survey of London Memorials	549
Ockendens and Hornchurch, Essex (illustrated)	550
The Nature of Beauty	552
Post-Impressionist and Futurist Exhibition	552
Winter Exhibition of Royal Water-Colour Society	553
Architect's Claim against a Brotherhood	554
The Society of Architects	554
Villa Rosa, Corlanzone, Italy (illustrations)	555-57
Notes on Books	559
Building Progress in the Provinces	561
British Patent Specifications	563
Correspondence	563

FORTHCOMING EVENTS.

Monday, December 15.

- Royal Institute of British Architects : Paper entitled "The Repair of Ancient Buildings," by Mr. W. A. Forsyth, F.R.I.B.A., at 8 p.m.
 Royal Society of Arts : Cantor Lecture (3) : "The Measurement of Stresses in Materials and Structures," by Professor E. G. Coker, D.Sc., at 8 p.m.

Tuesday, December 16.

- Nottingham and Derby Architectural Society : Paper entitled "An Old Priory Church," by Mr. J. R. Naylor, at 8 p.m.
 Illuminating Engineering Society : Paper entitled "Some Problems in Daylight Illumination, with special reference to School Planning," by Mr. P. J. Waldram, F.S.I., at 8 p.m.
 London Association of Master Stone Masons : Annual Dinner.

Thursday, December 18.

- Architectural Association Camera, Sketch and Debate Club : Paper entitled "The Present Relation of the Three Fine Arts."

BILL OR CHARTER ?

By the publication of the current number of their Journal the Council of the Royal Institute have put all the cards on the table in connection with the present position of the subject of Registration. It appears from a report of the meeting held on December 1, given in the same number of the Journal, that an amendment was moved by some of the Associates in the following terms: "That in the opinion of this meeting of the R.I.B.A. it is undesirable to come to any decision in regard to the Report and Recommendations of the Council without further information, and in order to arrive at some definite policy in regard to future action a further meeting should be called before the end of January next for the purposes suggested by the Registration Committee in Clause 5 of the Report of March 28, 1913, and that with the notice of that meeting every member should receive from the offices of the Institute: (a) A copy of the Bill as revised; (b) copies of the reports of the solicitors and parliamentary agents; and (c) copies of the whole of the documentary evidence upon which these reports were based."

The Council have met this amendment, although not put to the vote, in the fullest way, by publishing all the information asked for in the Journal, including, besides the report and recommendations of the Council, which were the immediate subject of consideration at the meeting on December 1, the report of the Registration Committee, 1912-13, a précis of the established principles, a précis of the advice and recommendations on registration of Messrs. Markby, Stewart & Co., Institute solicitors, and Mr. John Kennedy, parliamentary agent of the Institute, a précis of the draft of the Registration Bill of 1905 as revised and amended by the Registration Committee, 1912-13, and also the text of the draft Registration Bill as proposed. In addition to these there is a précis of replies received by the Council from the allied societies.

The whole of the members of the Royal Institute, as well as any other members of the profession, or of the outside public, who like to expend the sum of one shilling in purchasing the current number of the Institute Journal, are therefore in possession of the whole of the information and the proceedings which have led to the present report of the Council, and the question whether a Bill is to be pushed forward or not should be perfectly easy of determination. We have before us the Bill which mature consideration and legal advice have formulated as being the most suitable for

the requirements of the registration of architects. Needless to say, the Bill itself would meet with objections from some individuals, and particularly from the Society of Architects. Indeed, it is an open secret that the opposition which has been recently offered at the business meetings of the Royal Institute to the details of various schemes relating to registration have been largely supported, if not principally organised, by those who are members both of the Institute and the Society.

The most important matter in connection with the promotion of any Bill is the précis of the advice and recommendations of the Institute's solicitors and their parliamentary agent. It is clear from the legal advice that there is no possibility of any Bill for the registration of architects becoming law in the present state of parliamentary business. It would be impossible to frame a Bill which, in the present temper of the architectural profession, would not encounter opposition from one or more sections. There are those who are opposed in toto to any measure of registration or any scheme by which a disciplinary body might be set up in the profession. There are others who would object to any Registration Bill that did not favour the Royal Institute beyond any other body or society. On the other hand there are those who would oppose the Bill if it did grant superior favours to the Institute.

The attempt which has been honestly made by the Council of the Royal Institute to unite the Institute and the Society has been wrecked by—in plain words—the selfishness of the Associates. The result of that catastrophe undoubtedly makes it impossible for either body to force a Bill through Parliament without the consent of the other, and that consent it is, we fear, now practically impossible to obtain. Added, therefore, to the parliamentary difficulties of a Bill, which have been expressed by the Institute's legal advisers, there is a more weighty and unfortunate fact that the architectural profession at the present moment is a house divided within itself. Under these circumstances we must regard the prospects of a Bill as hopeless, at any rate at the present time.

As an alternative, the members of the Institute have now before them the proposal of the Council that the title of "Chartered Architect" should be adopted and permission for the restriction of the use of the term obtained by the provisions of a new charter. There are some who profess to regard the value of the title of "Chartered Architect" as of infinitesimal importance. There are others—and with them we agree

—who believe that the high estimation in which the general public hold the term of "Chartered Accountant" is an earnest of the value that would also be attached to the distinction of "Chartered Architect."

Inasmuch as the Institute at the present time restricts, or endeavours to restrict, its membership to those who are properly qualified architects, there is sufficient warrant to justify its application to His Majesty to grant a new charter, containing such further privileges and powers as are required to promote effectively the advancement of architecture by enabling the R.I.B.A. to register and to distinguish persons qualified to practise. In its roll of members and Licentiates the Institute has already formed a register of "persons qualified to practise," for it must be remembered in any consideration of the question as to who shall be allowed the title of "Chartered Architect," that the Licentiates who have been admitted by the Council of the Royal Institute have been so after evidence and examination of their credentials to be regarded as persons qualified to practise. It may possibly be said that the qualifications in some cases are rather slender, but the same can with equal truth be affirmed of some of those who passed the examination qualifying for membership as an Associate.

There appears to be in the ranks of the Associates a certain number who are jealous of the title of "Chartered Architect" being granted to Licentiates equally with themselves, and this jealousy, we understand, is being fostered and inflamed by members of the Society of Architects. In any scheme for the registration of architects, whether by Bill or by Charter, there must necessarily, under the well-known principle in English law of vested interest, be the admission on the register of those who are less qualified than others. Even, therefore, if it be assumed—although for our own part we are confident that there is no valid ground of such assumption—that the Licentiates as a class are inferior in attainment or qualifications to the Associates as a class, the principle of vested interest must inevitably entail their registration, and that of many others who are less qualified or even unqualified if registration be effected by Bill, so that registration by charter undoubtedly does ensure that those who are included in the roll are, at any rate, sufficiently competent to be registered as persons qualified to practise in the opinion of the Council of the Royal Institute.

Any serious opposition which may be offered at subsequent meetings of the Institute to the Council's scheme of registration by Charter will, in our opinion, be restricted to three sources. First, those who do not approve because they think the title of "Chartered Architect" is valueless; second, those whose jealousy resents their being placed on equal terms with those whom they consider their inferiors; third, those who support the Society rather than the Institute. The first of these classes should certainly be content to abstain from obstruction, for if the title of "Chartered Architect" is, in their opinion, of little or no value it necessarily must also be harmless, and therefore those who hold that opinion may be well advised to let those who have a contrary one have their own way. The second class who would offer obstruction from motives of jealousy must be asked to recognise that without sacrifice of individual opinions any measure of protection for themselves from absolutely unqualified persons is impossible. With regard to the third class, one can hardly expect that the Society of Architects and its friends will look favourably upon any scheme which tends to exalt the present superiority of the Royal Institute. But even for the Society one may urge that registration of chartered architects will be no obstacle to the passing at a favourable time of a Registration Bill, and as the Society was founded for the express purpose of passing such a Bill through Parliament, and has been engaged for over a quarter of a century in trying to effect that object it is essential, we recognise, for its *raison d'être* that it should still continue to spend time and money on attempting to achieve what at any rate for the present is impossible.

NOTES AND COMMENTS.

THE absence from our columns last week of any reference to the important meeting at the Royal Institute on December 1 was not due to any indifference on our part, but was the result of a meticulous respect to the request of the Council that no report or reference to business meetings should be made in the columns of the Press till these meetings have been dealt with in the Institute Journal.

The correspondence between Mr. Burns, President of the Local Government Board, and Mr. Henry Hobhouse, Chairman of the Somerset County Council, opens up some important points with regard to the future of rural housing. The position that Mr. Burns takes up is illustrated by the following extract from his letter:

"My answer is that the problem of providing houses in rural districts is in many cases an urgent one, and it is obvious that in such cases local authorities cannot be allowed to slacken their efforts at this stage. I am aware that some rural district councils who either were considering the desirability of building or had actually determined to build have taken the announcement of the Government policy as meaning that local authorities might hold their hands. I am glad, however, that there are other councils who realise that the question is too urgent to admit of any delay, and are going ahead with necessary schemes.

"My view is that those councils who are willing now to undertake cottage building should be in at least as good a position as those who think they should wait till the Government scheme materialises.

"I have put this view before my colleagues, and I am in a position to announce on behalf of the Government that in any case in which a rural district council now gets the sanction of the Local Government Board and starts to build cottages in its district under the Housing Acts, the State, when the necessary powers to enable it to provide cottages in rural areas have been obtained, will be willing to take over the council's cottages with the liabilities then properly outstanding in respect of them. This will be subject to the Local Government Board giving a certificate in each case that the houses were built to satisfy a real demand, that they are satisfactory in construction, and are reasonable in cost. I think you will agree with me that these conditions are by no means onerous, and in fact the Local Government Board will have satisfied themselves on these points before sanctioning the loan."

The view held by Mr. Hobhouse is thus expressed:

"I feel sure that there will be a widespread feeling of regret among persons interested in local government at the decision of the Government to take such an important matter as housing entirely out of local hands. The County Councils Association at their last meeting passed a unanimous resolution expressing their willingness for the County Councils to undertake duties in connection with housing, if asked to do so. In your letter you welcome our 'interest' in the matter, but, so far as I know, you have never consented to placing any direct responsibility for housing on the county councils, but have always preferred to deal with the minor authorities in this matter. Many of us think that, if a great housing scheme is to be carried out, it should be done in communication with, and with the aid of, the large local authorities, who know the circumstances of their areas and are equipped with an efficient staff, including medical officers of health. There are obvious objections to the Central Government attempting to carry out directly by its own officials the housing of the working-class population, and, so far, Parliament has not consented to this policy. I should have thought that, if large funds are to be devoted from the Exchequer to this excellent purpose, it would have been better to have asked the larger local authorities to submit well-considered schemes of housing for their respective areas for approval by a Government Department. There are recent precedents for such a plan in the Small Holdings Develop-

ment, and Road Improvement Acts, which might perhaps be followed in the equally important matter of housing. Anyhow, I trust that you, as President of the Local Government Board, will be able to devise some plan for preserving to the stronger local authorities, at all events, some voice and interest in what is so largely a question of local, as well as national, concern."

There can, we think, be no question in the minds of those who have experience and knowledge of the subject that the problem of rural housing would be better dealt with by county councils rather than by rural district councils or a Central Government Department. The view of the district councils is likely to be too parochial and restricted, the view of a Government Department would almost certainly be insufficiently determined by accurate knowledge of local conditions. The provision for the housing of mining communities in the North of England is a very different matter from that of agricultural labourers in, say, Somerset or Suffolk. The area over which district councils have control is too small to allow of proper adjustment of expenditure with full consideration for the circumstances of neighbouring areas. Thus we are driven to the conclusion that the county council is the proper authority to regulate the character of the housing and its extent, subject, of course, to some measure of control with regard to finance by the State which it is evidently intended by the present Government, shall find the money, and, as we have before pointed out, must necessarily do so.

Amongst the catalogues which have been issued of the collections of the Victoria and Albert Museum few will be of more interest to architects and lovers of old furniture than that dealing with old English Pattern Books of the Metal Trades. From these and the illustrations which appear therein we have contemporary evidence of the stock patterns of ironmongery of many different varieties which will be useful to all those who desire to replace missing handles and other fittings on furniture and joinery of the date covered by the pattern books, which are distributed over a period of about seventy-five years, embracing the last half of the eighteenth century and the first quarter of the nineteenth century.

The interest of Knossos has been still further extended by the paper read by Sir Arthur Evans on (1) the Pillar Rooms and Ritual Vessels of the Little Palace at Knossos; and (2) the Tomb of the Double Axes. The "Little Palace," now fully excavated west of the great building at Knossos and connected with it by a paved way, was, like the Palace itself, largely devoted to cult purposes. In the first excavated part was a shrine with fetish figures belonging to the last Minoan Period. In the more recently excavated parts had come to light a series of "Pillar Rooms," apparently the crypts of shrines above. Associated with one of these had been found a remarkable "rhyton," or libation vessel, in the form of a bull's head. It was formed of black steatite with shell inlays, and the eyeballs were of crystal with the pupils painted underneath. Near this was found part of a stepped steatite socket, such as were used to insert the shafts of the sacred double axes of Minoan cult. Other ritual vessels of painted clay, including another bull's head "rhyton," were found near.

The discovery of the "Royal Tomb" at Isopata on a hill north of the site of Knossos had an important sequel. About a quarter of a mile north of this, further Minoan tombs came to light, some of great interest. They belong to the last Palace Age of Knossos, and the first discovered was a built tomb with remains of keel-shaped vault, like that of the Royal Tomb. In this chamber was found a gold ring with a representation of a ritual dance. The furniture of some of these graves was characterised by the appearance of a new class of vessels decorated in red, black, and kyanos blue. The colours on these were imperfectly fixed, the brilliant decoration being specially

designed for the use of the dead. In one of the tombs, the "Mace-bearer's," was found a faceted stone mace of beautifully variegated marble, and evidently of ceremonial use.

The most important of all the tombs was that to which the name of the "Tomb of the Double Axes" has been given. It consisted of a rock-cut vault divided into two sections—on one side a small chamber with a stone bench round, on the other a raised rock dais in which was sunk the burial cist. At the back of the chamber was a projecting pier of rock, on which was cut a column in low relief. On the floor of the chamber stood a magnificent set of painted vases in the "Palace style." Near the projecting pier and column and at the back of the cist were remains of ritual vessels, including a bull's head "rhyton" of steatite, of the same class as that found in the "Little Palace," and with them two bronze double axes of the thin "votive" kind associated with shrines. What is specially remarkable, however, as indicating the influence of religious symbolism, the sepulchral cist itself was carefully cut out of the virgin rock in the outline of the sacred double axe. The tomb here was at the same time a shrine.

The beauty of heraldry from the point of view of decoration is, to our mind, quite sufficient warrant for the exhibition which has been opened at Glasgow with the object of stimulating interest in heraldic art.

LONDON COUNTY COUNCIL. THE LATE MR. WALTER EMDEN.

SYMPATHETIC reference was made this week at the meeting of the London County Council to the public career of the late Mr. Walter Emden. Addressing the members at the commencement of the Council's proceedings, the Chairman (Mr. Cyril Cobb) recalled the fact that Mr. Emden was for twelve years a member of the L.C.C., representing the Strand County Electoral Division from 1892 to 1904. During that period he was Chairman of the Corporation Property Committee, Vice-Chairman of the same Committee at a later date, and Vice-Chairman of the Bridges Committee. Mr. Emden had also, continued the Chairman, taken an active part in local government affairs. In 1898 he was Chairman of the Strand District Board of Works. In 1900 he was elected an Alderman of the City of Westminster, and in 1903 occupied the Mayoral chair. In 1907 he became Mayor of Dover, and occupied the position for three years in succession.

Mr. Cobb went on to refer to Mr. Emden's distinction as an architect, and reminded the Council that in 1898-9 he was President of the Society of Architects. He had also been the architect of many important theatres and hotels, among his works in London being the Garrick, the Court, the Duke of York's and Terry's Theatres, and the Tivoli Music Hall. With Mr. Wm. Woodward he was also associated in the building of the Piccadilly Hotel.

On the suggestion of the Chairman, it was decided to send a letter of condolence to Mr. Emden's relatives.

LONDON UNIVERSITY SITE.

Mr. Smallwood asked the Chairman of the Education Committee whether, in the communications which had passed between the Senate of the University of London and the Higher Education Sub-Committee, any offers had been included in writing from or on behalf of the Bedford Estate in reference to the proposed Museum site?

Mr. John W. Gilbert (Chairman of the Committee) replied that communications as to sites from the Senate to the Council had been confidential, and he thought it was inadvisable that they should be made public.

The consideration of the report of the Education Committee, recommending the utilisation of Somerset House for the new University buildings was postponed till the next meeting of the Council.

THE King has been graciously pleased to accept a copy of the Report recently prepared by a Special Commission of the British Fire Prevention Committee, entitled "Fire Protection in Russia."

ROYAL ACADEMY SCHOOLS PRIZE DISTRIBUTION.

On Wednesday evening last the awards of the R.A. schools were announced and the prizes distributed by Sir E. J. Poynter, P.R.A.

The list is as follows:—

Historical Painting.—The Pool of Bethesda. St. John, v. Gold Medal and Travelling Studentship (£200), Gerald Leslie Brockhurst.

Landscape Painting.—A Castle on a Headland; Shipping and Wet Sand. Turner Gold Medal and Scholarship (£50), not awarded.

Landscape Painting.—A Pebbly Brook. Creswick Prize (£25) and Silver Medal, Gaynor Elizabeth Bury.

Design for the Decoration of a Portion of a Public Building.—A Boar Hunt. First prize (£30) and Silver Medal, not awarded. Second prize (£10) and Bronze Medal, Mary Wilhelmina D. Hickson.

Design in Monochrome for a Figure Picture.—The Escape of the Spies. "Then she let them down by a cord through the window: for her house was on the town wall." Joshua, ii. 15. Armitage Prizes, first (£30) and Silver Medal, not awarded. Second (£10) and Bronze Medal, Winifred Beatrice Hardman.

Composition in Colour.—Prize (£10) and Silver Medal, Victor Noble Rainbird.

Cartoon of a Draped Figure.—A Suppliant. Prize (£25) and Silver Medal, Hilda Marion Hechle.

Two Paintings of a Figure from the Life.—First prize (£10) and Silver Medal, Madeline Graham Barker. Second prize, Bronze Medal, Robert John Swan (disqualified owing to having received the same prize before).

Two Paintings of a Head from the Life.—First prize (£5) and Silver Medal, not awarded. Second prize, Bronze Medal, Reginald Henry Nathan.

Perspective Drawing in Outline (open to Painters and Sculptors only).—A Step Ladder in the School Corridor. Prize (£5) and Silver Medal, not awarded.

Set of Four Drawings of a Figure from the Life.—First prize (£15) and Silver Medal, Victor Noble Rainbird. Second prize (£10) and Bronze Medal, Johannes G. A. Pisani.

Set of Three Studies of Drapery.—Silver Medal, Alice Dorothy Cohen.

Drawing from the Antique.—Prize (£5) and Silver Medal, Frances Howes Galbraith.

Painting from Still Life.—Prize (£5) and Silver Medal, Frances Howes Galbraith. Extra prize, Bronze Medal, Violet Mary Barnewall.

Composition in Sculpture.—Diana and Endymion. Gold Medal and Travelling Studentship (£200), Gilbert Ledward.

Model of a Design.—David and Goliath. (The Decapitation of Goliath.) I. Samuel, xvii. 51. First prize (£30) and Silver Medal, Joseph Hermon Cawthra. Second prize (£10) and Bronze Medal, Ernest Rowland Bevan.

Two Models of a Bust from the Life.—First prize, Silver Medal, Edgar Allan Howes. Second prize, Bronze Medal, Alfred Henry Wilkinson (disqualified owing to having received the same prize before).

Model from the Antique.—Prize (£5) and Silver Medal, Alexander Stiles.

Design for a Medal.—An Allegorical Figure of Canada. Prize (£5) and Silver Medal, not awarded.

Set of Three Models of a Figure from the Life.—First prize (£15) and Silver Medal, Peter Induni. Second prize (£10) and Bronze Medal, Thomas Humphrey Paget.

Design in Architecture.—A Town Hall for an Important City. Gold Medal and Travelling Studentship (£200), David John Chisholm.

Set of Architectural Drawings.—The West Front of St. Mary-le-Strand. First prize, Silver Medal, Harold Clayforth Mason. Second prize, Bronze Medal, not awarded.

An Architectural Design.—Prize (£20) and Silver Medal, Walter Llewellyn Clark.

Set of Drawings of an Architectural Design.—First prize (£15) and Silver Medal, James Mollison Wilson. Second prize (£10) and Bronze Medal, Harold Clayforth Mason.

Perspective Drawing in Outline (open to Architects only).—The West Front of St. Martin's-in-the-Fields. Silver Medal, no competition.

Original Composition in Ornament (open to Architects only).—Prize (£5) and Silver Medal, Ernest Alexander R. Rahbula.

Architectural Design with Coloured Decoration.—The Ceiling of a Great Hall, 100 feet by 50 feet. Silver Medal, Geoffrey Philip A. Fildes.

Landseer Scholarships in Painting and Sculpture, of £40 a year each, tenable for two years, have been awarded—in painting to Victor N. Rainbird and Robert J. Swan; in sculpture to Joseph H. Cawthra and Peter Induni; and for one year in painting to James Williams.

The galleries containing the competition works will be open to the public (free) to-day, Friday, Dec. 12, from 11 to 4.

COMPETITION NEWS.

BOLTON-UPON-DEARNE.—The Urban District Council is desirous of selecting a limited number of architects of experience in the erection of houses for the working classes (especially miners) as competitors for the laying-out of about sixteen acres of land and the erection of about 310 houses within the urban district. Premiums of £50 and £25 are offered. Applications should be sent to the Clerk by Dec. 23.

DURHAM.—Members and Licentiatees of the Royal Institute of British Architects are advised that the conditions of the competition for a proposed residential school for defective children at Blake Hall, near Durham, are not in accordance with the Institute's regulations for architectural competitions, and the Competitions Committee are in correspondence with the promoters with a view to getting them amended.

LONDON.—The Commissioners of Works desire to announce that they have appointed Mr. Ernest Newton, A.R.A., to be one of the assessors in the competition of architects for the new public offices (Board of Trade, &c.), in the place of the late Mr. John Belcher, R.A.

LONDON.—The Tottenham Education Committee have decided to obtain competitive plans for a school for 900 scholars in Vale Road.

LONDON.—The proprietors of *Concrete and Constructional Engineering* invite competitive designs of a detached or semi-detached labourer's cottage, largely or mainly of concrete, to be erected in sets of six in the Home Counties of England (at least thirty miles from Charing Cross) at a prime cost to the owners of £125 per cottage. The following premiums are offered: First prize, one hundred guineas; second, fifty guineas, third, twenty-five guineas; fourth and fifth prizes, ten guineas each. Mr. Max Clarke, F.R.I.B.A., Professor A. Beresford Pite, F.R.I.B.A., and Mr. Edwin O. Sachs, F.R.S.Ed., will act as assessors. The designs must be delivered by May 15, 1914.

NEWCASTLE-UPON-TYNE.—As the result of a competition (in the adjudication of which the Rutherford College Committee were assisted by Mr. Edwin Cooper, F.R.I.B.A.) it was announced that the best plans for the extension of the college were those of Mr. W. H. Knowles, F.S.A., F.R.I.B.A., of Collingwood Street, Newcastle, and that he had been awarded the prize and would carry out the work.

ST. ANNES.—The Urban District Council have selected fourteen competitors to send in designs for the laying out of St. George's Gardens and the foreshore.

WHEATLEY HILL.—New branch premises are to be erected at Wheatley Hill for the Haswell Co-operative Society from the plans of Mr. J. Wilson Hays, of Wingate, which were placed first in the open architectural competition.

ILLUSTRATIONS.

THE INSTITUTION OF CIVIL ENGINEERS.

WE this week complete our series of illustrations of the new home of the Institution of Civil Engineers, recently erected from the designs of Mr. James Miller, A.R.S.A., F.R.I.B.A.

PRINCE ARTHUR OF CONNAUGHT will open the Middlesex County Hall, Westminster, on December 19, and it is expected he will be accompanied by Princess Arthur. He was to have opened the hall in October, but owing to his wedding the ceremony was postponed.

THE *London Gazette* last week contained the King's Commission reappointing the Royal Commission on Ancient and Historical Monuments and Constructions of England, and extending its proceedings to cover the period up to the year 1714 instead of up to 1700.

MR. JAMES F. READE, A.M.I.C.E., has submitted plans and specification for an important scheme for the city of Kilkenny main drainage and sewage disposal works, at an estimated cost of £22,000. The plans were approved by the Corporation, and application to the Local Government Board for sanction for a loan was ordered to be made.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting of the Architectural Association was held at 18 Tufton Street, S.W., on Monday last, the 8th inst. Mr. W. Curtis Green, F.R.I.B.A., the President, occupied the chair.

Messrs. G. R. Galsworthy, R. J. Jezzard, and J. J. A. Murphy were elected members.

Mr. W. H. Ward, M.A., A.R.I.B.A., read the following paper, entitled:—

The Architecture of Portugal.

Portugal, like most of the lesser States of Europe, has never stood in the direct line of development in European civilisation and art, but its civilisation and art is not for that reason without interest. Like other small countries, it has borrowed largely from greater neighbours, but has modified in borrowing, in accordance with its national bent and in obedience to the various peculiar influences under which it has come from time to time. From one point of view both the architecture and the language of Portugal may be regarded as merely provincial varieties of those of the Iberian Peninsula as a whole, sharing with Aragon and Navarre, Leon and Castile, and the other Spanish kingdoms not only the language and heritage of Rome, but also the stimulus of a national struggle against the Moors and contact with a brilliant Mohammedan civilisation. But the fact that the Portuguese have, with the exception of short interludes, succeeded in maintaining their independence as against the rulers of Spain also raises their language and arts to something more than provincial importance, while the peculiarity of their geographical position, shut off from all land neighbours but one, and forced to expand, if at all, by way of maritime enterprise, has brought them into contact with very varied and, in some cases, very remote civilisations, and given them the opportunity of playing a part in world history out of proportion to their numbers. It was they who discovered the sea route to Asia; their colonial empire rivalled those of Spain and England, and is still considerable; and they possess, in Camoens, the author of the *Lusiad*, one name in literature of European fame, which is more than can be said of many of the more highly-organised lesser States, such as, say, Sweden, Holland, or Switzerland.

A brief outline of the history of Portugal will help to make the architecture intelligible. The territory which now bears that name was conquered by the Romans in the second century B.C., and remained under their rule till the barbarian invasions of the fifth century A.D. At the end of the sixth it was absorbed in the Visigothic kingdom of Spain, with which it was conquered by the Moors early in the eighth century. The history of the State of Portugal begins with the grant of the Countship of Porto Calia, at the mouth of the Douro, by Ferdinand of Castile to his son-in-law, Henry of Burgundy, in 1095. Henry's son Alfonso took the title of King in 1139. The dynasty of Burgundy lasted for nearly 300 years, during which a constant fight was kept up with the Moors, who were gradually driven further and further south till the whole of the present territory was won, though large numbers of the Moorish population remained and accepted Christianity.

In 1383 the House of Burgundy became extinct in the legitimate male line, and, in order to avoid being absorbed in Castile by the marriage of the heiress, Dona Brites, the Portuguese elected an illegitimate prince, John I. of Aviz, as king. He defeated the Spaniards in the decisive battle of Aljubarrota and strengthened himself by alliance with England and marriage with Philippa of Lancaster, daughter of John of Gaunt. Under the House of Aviz Portugal reached her period of greatest prosperity and success. Early in the fifteenth century Prince Henry the Navigator promoted exploration and overseas conquest in Africa. Later on the Cape of Good Hope was rounded, trade opened up with the East, and a colonial empire was founded, both in the East Indies and Brazil. The reign of Dom Manoel the Fortunate, the contemporary of Francis I. of France and of Henry VII. and Henry VIII. of England, a magnificent patron of arts and learning, and, in fact, a typical prince of the Renaissance, but more virtuous and disinterested than most, saw Portugal at the summit of her fortunes. After him the Court grew priest-ridden and helpless. The kingdom fell a prey to Philip II. of Spain in 1580, and, becoming involved in a war with Holland, lost her naval power and many of her colonies to the Dutch. Independence was recovered, and the house of Braganza seated on the throne in 1640, and the long-standing alliance with England

was revived, which proved more profitable commercially to us than to Portugal. This alliance, however, by giving us a foothold on the Continent, became the means of delivering Europe from the yoke of Napoleon through Wellington's Peninsular campaigns. The subsequent career of Portugal, whether under the monarchy or the republic, has been neither glorious nor remarkably progressive, though by no means uneventful.

Though Portugal was for 600 years a part of the Roman Empire, and has remained Latin in language, the remains of Roman architecture are scarce and not very important. The interruption of the barbarian and Mohammedan invasion was so complete that no independent development of a Romanesque style was possible. The Visigoths were not builders, although they had a fine decorative art of their own, as may be judged from the Visigothic jewels in the Cluny Museum in Paris. It was otherwise with the Moors, who built largely and well. Few buildings, however, actually dating from the period of the Moorish Dominion have survived, and they consist chiefly of fortifications, such as the ruined Castello dos Moros on the heights above Cintra, but, on the other hand, there are a considerable number of buildings built or adorned by the Moriscos, or converted Moors, for their Christian conquerors, who had almost everything to learn in the way of civilisation from the foes they had overcome.

Moorish influence in structural methods and decoration thus left an enduring mark on Portuguese architecture and crafts, to which I shall return later. Side by side with Moorish work came the introduction of various phases of Romanesque and Gothic from abroad, principally from France and partly through the medium of Spain; each phase came independently from outside, as happened with Gothic in Italy, and did not develop each out of the last, as was the case in France and England. The result of this is that types often appear in Portugal half a century or even more later than elsewhere—sometimes when they were already obsolete in their native countries—and that types belonging to different periods at home appear simultaneously in the same Portuguese building—a fact which often makes Portuguese mediæval architecture an extremely puzzling one to date. In the course of the fourteenth and fifteenth centuries the influence of England, with which there was a close alliance, and of the Low Countries, and even Germany, with which there was much commercial intercourse by sea, is often traceable side by side with that of Spain and France, while through all runs the Oriental strain.

Towards the end of the fifteenth century Portugal developed her one definitely national style, called *Manoelino*, though it began rather earlier than the reign of Dom Manoel. It consists essentially in an extremely exuberant and naturalistic form of late Gothic, analogous to the Flamboyant of France and the contemporary Gothic of Germany, with certain Moorish reminiscences. But soon there were grafted on to it motives derived from Indian architecture on the one hand and the Italian Renaissance on the other, the combination making a very curious and decorative, if over ornate, result. From the sixteenth century onwards architecture ran much the same course in Portugal as in other Southern countries. The delicate and fanciful Early Renaissance was followed by a severer Palladian phase, and that by various types of Baroque in the seventeenth and early eighteenth centuries, and those again by a more correct but duller Classic in the later eighteenth, while the modern architecture of Portugal, if it has any recognisable tendency at all, seems to hesitate between a revival of "Arte Manoelina" and French "Art Nouveau."

To illustrate these remarks, I propose now to give a short account of some half-dozen of the most important architectural monuments of Portugal, such as the collegiate churches of Alcobaca, Batalha, and Belem, the old cathedral and the churches of Sta. Cruz at Coimbra, the buildings of the Knights Templars at Thomar, and the palace at Cintra. But before doing so I think it will be interesting to trace the effects produced by Moorish traditions of building and decoration on Portuguese architecture.

The Portuguese borrowed from the Moors a peculiar method of walling, and forms of chimneys, arches, windows, and battlements. Most of these are found in the Palace of Cintra. The older walls there are built in the Moorish method of rubble stonework, strengthened at intervals by the introduction of bands of brickwork three courses thick. The chimneys over the kitchens form huge cones not unlike the Kentish oast houses, rising high above the roofs to carry off the fumes of cooking, and originally covered exter-

nally with a decoration of glazed tiles. Such chimneys are still found in Morocco at the present day, and similar ones of the seventeenth century occur in the monastery of Alcobaça, where they rise from cast-iron columns in the centre of a marble-lined kitchen, through which a clear brook runs in marble channels. The Moorish form of arch, of horseshoe shape, or with cusps, with a cusp resting on the capital, is pretty frequent, as also are the Moorish type of window, consisting of two cusped arched lights, often stilted, rising from slender shafts, sometimes twisted, with abaci moulded on the side but not on the face, the whole being enclosed in a rectangular moulded frame. The Moors also used various types of battlements, serrated or of other peculiar forms, and the strange battlements of the fifteenth-century castle at Belem, in which the merlins take the form of shields, is perhaps a relic of these. Moorish tradition is also probably traceable in the curious tracery of some of the Portuguese Gothic churches. It does not grow out of the planes of the moulded window jambs, as in northern Gothic, but consists of geometrical patterns set in the openings and unrelated to its mouldings, being derived probably either from the pierced wood-screens familiar in Cairene work, or the Oriental method of filling window-openings with patterns of brightly-coloured glass set in plaster.

Again, the Moors were skilful carpenters, and excelled in richly-wrought woodwork. They had a peculiar method of constructing timber roofs with coupled rafters connected by crossed strips of wood arranged decoratively, and they sometimes covered the whole inner surface of the roofs with a decoration of interlacing laths in star and other patterns richly coloured. An example of this occurs in the palace chapel at Cintra. The Portuguese carried on this tradition for centuries, substituting moulded panel-work of various designs, but usually retaining the colour, as in the Halls of the Shields, of the Magpies, and of the Swans at Cintra, and the Hall of Degrees in Coimbra University.

The Moorish fondness for elaborate cabinet-work also survived in the church screens and railings, with turned-wood balusters of the Renaissance period, such as those of Sta. Cruz and the new cathedral at Coimbra, and perhaps in the extraordinarily worried decoration of some of the Baroque churches of the type known in Spain as Churrigueresque, such as that of San Francisco at Oporto.

Perhaps the most obvious and enduring effect of Moorish tradition lies in the use of tiled linings. The manufacture of coloured glazed tiles in the East is almost as old as history. It was introduced into Spain by the Arabs, perhaps as early as the eighth century, but no existing examples can be proved to be earlier than the thirteenth. Their beauty of colour, and the cool expanses of a floor surface which they provide, so grateful in the torrid heats of summer, earned them a wide popularity in the Peninsula which they have ever since retained. In the earliest examples the tiles are self-coloured—either bluish-green, brown, dark violet, or milky-white, and of various shapes, and they are laid in geometrical patterns. Later on a process was invented of producing a pattern on single tiles, by cutting a design in incised lines on a wooden stamp, which was reproduced in raised lines on the soft clay; colour was then run into the intervening spaces. The designs were usually of the star type, but grotesque animals and flower and foliage motives were sometimes introduced; a little later embossed tiles, especially in vine patterns, came into use. At Cintra are several rooms decorated with high tile dados of some of these kinds of tiles, some of them being finished with cusped and crocketed crestings. The tiles used are mostly self-coloured, or nearly so; but the old cathedral at Coimbra exhibits fine examples of patterned tiles of the fourteenth century clothing the walls, and, till the recent restoration, also the piers with a bewildering variety of richly-coloured devices, producing a tapestry-like effect.

At the Renaissance the star patterns were supplemented by scroll and other flowing ornamentation, and the range of colour became more varied, being painted on the tiles without bounding ridges. The patterns are sometimes continuous, covering the whole walls, as in the seventeenth-century sacristy of Sta. Cruz, or enclosed in architectural borders, as at Sao Amaro at Alcantara. About the same time lustre tiles—first pale gold and later red gold—also came into use.

But after the expulsion of the Moors in 1609 the art of the tile-maker gradually declined, the colours lost in brilliance, and their range became restricted to blue designs on white grounds, with purple and yellow as occasional

variants. The blue and white technique seems to have arisen simultaneously at Delft and in Portugal, and in each case seems to be the outcome of a desire to imitate Chinese porcelain, then becoming known in Europe.

Many of these tiles had a single flower vase or figure subject on each. But the practice of making large figure subjects in ornamental borders, with a portion only of the total design painted on each individual tile, came in in the sixteenth century and continued till the early nineteenth. An example occurs in the nave of Sta. Cruz at Coimbra.

Tile linings were applied, not only to rooms, but to cloisters, tanks, steps, garden seats, and even roofs, but their use for entire house-fronts, now common in Portuguese towns, seems to be no earlier than the nineteenth century; that is, it came in when both the colour and the design of the tiles had sunk to insignificance.

We may now turn to the Christian architecture with which these various Mohammedan traditions and influence are interwoven. The earliest examples are naturally found in the north, and consist of an exceedingly simple and rude type of Romanesque churches of the eleventh and twelfth centuries, with rectangular naves and chancels, and occasionally a northern porch. After the foundation of the cathedral of Santiago de Compostella, which was probably modelled on St. Sernin at Toulouse, a more developed basilican plan, with a transept projecting beyond the aisles and apses on the east side of it, became established as the national type, varied in a few of the more important later Gothic churches, such as the cathedral of Lisbon, by a chevet with radiating chapels.

An admirable example of the Romanesque style, though dating from quite the close of the twelfth century, is the old cathedral or *Seo Fe Velha* at Coimbra, with its austere fortress-like exterior almost unpierced by windows and crowned by battlements, and its long, dimly-lit nave, culminating in the glory of an apse rich in carving and gilding; all the light comes from the high west window and two in the domical lantern at the intersection, which, externally, is still clothed with a mosaic of self-coloured tiles; internally the aisle walls retain the patterned tile lining which has been stripped from the piers. The latter have half-round engaged shafts with capitals of Byzantine character. There is no clerestory, and the barrel-vault of the nave is supported by half-barrel vaults over the quadripartite aisle vaults. It is obvious that the Portuguese, who in the early stages were very timid in their vaults, eventually developed some of the boldest and more enduring vaults in the whole of Europe. The three apses of the old cathedral, probably the work of a colony of Flemish artists who were employed by Manoel the Fortunate. The central one is in wood, and consists of exuberant Late Gothic canopy work gilded on a blue ground. The side apses are in stone, and are Early Renaissance, executed by Flemings or Frenchmen. The beautiful font near the west end appears to be the work of Jean de Rouen, a Frenchman who came to Portugal about 1521, after having worked upon the monument of Cardinal d'Amboise at Rouen.

The transition from Romanesque to Gothic has its finest example in Portugal—as it has in London—in a church of the Knights Templars. This circular, or rather polygonal, church at Thomar, of which, unfortunately, I have no slide, was built about 1165, and therefore probably earlier than the still fully round-arched cathedral at Coimbra.

The most important building of early pointed architecture in Portugal is contemporary with the last two. This is the great Cistercian Abbey Church of Alcobaça, founded in 1165, and finished 1211, and begun at least by Frenchmen. In plan it is to a certain extent modelled on the mother church at Clairvaux, having a semi-circular aisled choir, with nine radiating chapels. But the rest of the church shows a wide departure from Northern practice. The Portuguese, left to themselves, were afraid of continuing the French vaulting system of the choir with its relatively slender piers and flying buttresses. They made the nave piers so excessive that they almost concealed the arches, and buttressed the main vault by carrying up the aisle vaults and thick outer walls to the same level. The interior of this huge nave was largest in Portugal, was once with stall-work and other embellishments of various apses, but all this was systematically destroyed by Massina's soldiers in 1819, and its gaunt grey perspective now contrasts oddly with the faded colours and vanished gildings of the florid Baroque decoration of the choir, which, however, provides a not unpleasant splash of colour amid the gloom.

The influence of Northern Gothic was for a long time

very slight in Portugal, and the thirteenth century, which was such a splendid building age in Northern Europe, was almost barren there. Most of the earlier pointed buildings date only from the fourteenth century. To this period belong the many of the beautiful cloisters which offer one of the great charms of Portuguese churches. They are not, as a rule, placed, as with us, on the south side of the church to catch the sun, but rather on the north to obtain shade, though sometimes also to the east or the west; and they are planted with palms and roses, flowering shrubs and creepers, and aromatic herbs set in box borders and refreshed with fountains plashing in marble basins. Alcobaça possesses one of these, which, though not begun till about 1310, would except for its national peculiarities pass in France or England as thirteenth-century work. Like most Portuguese cloisters, it is in two storeys, the upper one being of a somewhat later period, and has a lavatorium or fountain-house, in which, for some unexplained reason, the curious polygonal fountain is set askew with the walls.

The fine church of Sta. Clara at Coimbra, now half-silted up by the floods of the Mondego, is another example of fourteenth-century building, which, from its massiveness and simplicity and the absence of tracery, looks as if it belonged to the eighteenth or even the twelfth. Much, too, of the picturesque Castle of Leiria and its beautiful ruined chapel was built in the fourteenth century by King Denis the Labourer, who earned his name by his unremitting efforts to reclaim large tracts of waste land.

One of the first symptoms of Portuguese Gothic getting abreast of that of other countries is to be found in two beautiful altar tombs at Alcobaça, made about 1390, almost certainly by foreign and probably by French craftsmen. They are the tombs of Dom Pedro I. and his mistress, Inez de Castro, who was murdered in the garden near Coimbra, called in consequence the Quinta das Ligrimas, beside the romantic Fonte dos Amores. The effigies of the Royal lovers lie facing one another on sarcophagi, whose sides are enriched with elaborate canopy-work. The sculpture is for its accomplishment unparalleled up to that time in Portugal, while the decorative portions, though embodying some favourite Portuguese motives, has none of the luscious barbarism of the later native style.

Dom Pedro's son was the last of the legitimate Burgundian line, and the opening of the era of the House of Aviz which followed was signalled from the first by a successful struggle for national independence against the Spaniards. Dom John III., whose wife was a granddaughter of our Edward III., and one of whose sons was to be distinguished as Prince Henry the Navigator, determined to commemorate the glories of the national history and of his house by the foundation of the splendid church and monastery, Sta. Maria da Vittoria, on the spot where the battle of Aljubarrota began, and hence known as Batalha. The church was begun in 1385, and the Royal mausoleum was completed in 1430. It is built of white limestone, which turns a golden yellow with age and stands in a valley surrounded by woods of pine and cork oak. The plan is the traditional basilican one, with a transept and five apses beyond it. The use of such a plan disproves the tale that the design was obtained by Queen Philippa ready-made from England, and it is probably the work of a Portuguese, Afonso Domingues, who seems to have carried the eastern portion up to a considerable height. The remainder was carried out by one who succeeded him in 1402, and is said to have been an Irishman. The mixed characteristics found in the church makes its origin a most difficult problem to unravel, and some of those which give it an English look may be due to other causes than English influence. For instance, the long lines of its balustraded and pinnacled roofs, which suggest a Perpendicular church or college chapel, may be only the outcome of the method of roofing common both in Spain and Portugal by covering over the vaults with a flat pavement of accurately-fitted stone slabs. But, further than this, the great western doorway strongly resembles the same feature at King's College Chapel, Cambridge, and internally the ridge rib in the nave and the lofty arcade, with no triforium to divide it from the clerestory, and the clustered shafts and the chapel are all English features. On the other hand, the great height of the vault, 106 ft. high and 25 ft. wide, the bases of the nave shafts and the square abaci of their capitals suggest French influence; other features are purely native. The south portal, with its great heraldic panel, is like Portuguese examples of much earlier date. The elaborate and minute tracery which fills some of the windows and divides up the lancets of the apses into panels is perhaps due to Moorish tradition, and is intended to block out the excess of light;

an end which might have been attained by smaller windows. Of Moorish origin, too, are the cusped arches in the Founders' Chapel. This chapel is square externally, but its central space is octagonal, and was formerly surmounted by an openwork stone spire like another attached to the north transept, and resembling that of Freiburg, in Germany. The explanation of these contradictions seems to be that the work as a whole was carried out by Portuguese, who had a fairly free hand as to details and particular features under the superintendence of an Englishman, or of a man familiar with English work, who had travelled in France and Germany, or was assisted by French and German craftsmen.

The impression produced by the great abbey is as mixed as it is original. Externally the proportions are imposing, and the elevations show in parts considerable beauty in features and detail, but the effect is marred, as is too often the case in Portugal, by a florid treatment full of ill-digested and ill-assorted foreign elements. Internally, the result is far more successful. Few nobler or more impressive interiors can be met with anywhere, swept though it is of all its splendid fittings by the vandalism of the French in 1891.

A very remarkable feature is found in the chapter-house, a square chamber 60 ft. in diameter, and yet vaulted in a single span. It is the largest room of the kind known that is vaulted without any central support, and its vault is so strong as to have withstood repeated earthquakes. In view of the timidity of earlier Portuguese vaults this feat is in itself almost sufficient to prove the presence of an accomplished northern architect.

King John III. and Queen Philippa, with four of their sons, including the Navigator, are buried in the southern chapel, but the tombs are plainer and the sculpture less fine than those of Alcobaça. Their grandson, named Edward, or Decarte, after his English grandfather, desired an even more splendid sepulchre, and Huet planned for him an octagonal mausoleum beyond the east end, which it was intended should be surrounded by light radiating chapels and light smaller chapels between them. But his short and unsuccessful reign did not allow him to complete the scheme or even roof it in.

The work was taken up again by Dom Manoel the Fortunate towards the end of the century, when the Manoelino style was in full swing. The work was carried on till 1528 by a father and son of the name of Fernandes, and for five years more by one John of Castile, who also worked at Coimbra and Belem; but, even so, it was not finished, and still bears the name of Capella Imperfeita. Manoel rebuilt the arch intended to lead into the main church, and carried up the piers with a view to building a lofty central vault. The arch is 45 ft. high, and shows the Manoelino style in its fullest development, with many planes of moulding, each elaborately enriched and interpenetrating one another, and several orders of traceried cusping of opposite direction. The compound vaulting piers, so mighty that in their unfinished state they look like towers, are treated as bundles of reeds interlaced and bound together by cables and ribbons, the hollows being filled with foliage and heraldic devices. All this is merely the extravagant virtuosity and naturalism of the last stage of Gothic carried to extremes, but here and there Renaissance ornament is also introduced; while John of Castile's last addition consists in a pure Renaissance screen of two arches in the clerestory, whose relatively single forms are in refreshing contrast to the orgy of controlled and florid lines around them.

Dom Manoel also embellished the cloisters of Batalha by filling the older plain openings with tracery of two alternating types, both composed of branch work, one of a regular reticulated pattern and the other, a lace-like screen of flowing design, probably suggested by Indian examples. At Alcobaça is an extraordinary doorway, which is interesting as showing the affinities of Manoelino with the naturalistic tendencies of Late Gothic in Germany, and the timid irruption into the midst of this flamboyance of Italian motives of diametrically opposite tendency. An opening with reversed cusps is framed in by two trees, with roots and stems and leafy boughs complete, and under their shadow nestle Italian arabesques.

Another monument of the Manoelino style is the church of Sta. Cruz at Coimbra. It is relatively sober, and shows no traces of Oriental influence, but resembles rather a French or Flemish flamboyant work, and is remarkable chiefly for the beauty of its fittings and contents, its tombs and tile linings. Its western choir gallery contains a magnificent

series of stalls, richly carved and gilded, probably the work of Flemings; above the canopies a frieze of reliefs representing the adventures of Vasco de Gama in India, with a crest of foliage.

In the choir are the tombs of two earlier kings re-erected by Dom Manoel. They are probably designed by a Portuguese, and are a not extreme example of Manoelino Gothic, with some Renaissance sculpture and ornaments by French craftsmen, among whom were Master Nicolas and Jean de Rouen. The latter also made the lovely marble pulpit in the nave, and some even more refined but rather damaged monuments in the cloisters. The organ is a very happy specimen of Renaissance work of the later sixteenth or early seventeenth century, richly carved and glowing with gilding and vermillion. It shows the effective favourite arrangement of pipes in a horizontal position common both in Spain and Portugal.

One of the noblest works of Dom Manoel's reign is the Hieronymites' Church at Belem, on the Tagus, in the outskirts of Lisbon, and which is certainly one of the most remarkable in Christendom. Externally there is something in the appearance of the golden white crystalline limestone of which it is built, and which closely resembles marble, and in the enriched doorway and windows sparsely set in a large expanse of plain wall, which calls to mind the cathedral of Como, while internally the soaring columns and the broad spaces of mysterious gloom, shot through with rays of tinted light, inevitably suggest the Duomo of Milan.

The work, which was erected in commemoration of the discovery of the sea route to India, was begun in 1498, with Bontaca, a Portuguese, as architect. He was succeeded in 1511 by Lourenco Fernandes, and the latter by John of Castile in 1517, said to have been a Biscayan. About this date, too, the Frenchman, Master Nicolas, and John of Rouen also arrived upon the scene. The external features are finely conceived and delicate in workmanship—Manoelino Gothic in their general lines, with Renaissance ornament.

Internally, the wonder of the church lies in its vaulting. The aisles and nave are of equal height, about 90 ft., and there are no arcades or transverse ribs, but the vaulting ribs spring direct from the top of slender octagonal piers and radiate in all directions, like those of English fan-vaults, but, contrary to English practice, the fans do not touch or intersect, but are connected by spaces of what is really barrel-vaulting, though it is stiffened by surface ribs. The transept, which is 95 ft. long and 65 ft. wide, and is undivided by piers, has a vault soaring even higher than those of the nave, and yet this mighty vault is so scientifically constructed that it stood firm when Lisbon was rocked to its foundations by the historic earthquake of 1755.

The sacristy, chapter-house, and other monastic apartments, as well as the cloisters, are likewise vaulted in a great variety of ingenious and beautiful systems. The cloister has a curiously Indian look, and suggests the court of a rajah's palace rather than a place of meditation for Christian monks. The strangely ornate tracery of the lower arcade is set back under the shadow of deep arches, which, at the angles, bridge two bays diagonally. The faces and sides of the piers, as well as the soffits and spandrels, are overloaded with arabesques and carved ornament. The garden in the centre was originally laid out in a star pattern of tanks lined with brilliantly coloured tiles.

The cloisters of Belem were almost the swan song of Manoelino art, but we cannot leave it without a reference to one of its most curious and extreme examples, which occurs in the Templars' building at Thomar. When this order was abolished in 1314 and in other countries its wealth was appropriated to Royal uses, Dom Denis the Labourer adopted a wiser source. He transformed it into the order of Christ "for the defence of the faith, the discomfiture of the Moors and extension of the Portuguese monarchy," and its wealth and prowess were used for the exploration and colonisation of Africa and India. The "Collegio de Christo," which crowns a hill above the town and river, contains a number of buildings of different periods and of great interest. Among them is the sixteen-sided church already referred to. This was enlarged under Dom Manoel by the addition of a rectangular building containing a nave and chapter-house by John of Castile, between 1505 and 1517, when he removed to Belem. His work in the two places is very similar, but after his time a further addition was made, by Ayres do Quintal, which for the extravagance and originality of its features has no parallel. Their composition is almost indescribable in words. The window on the side invariably disgusts the beholder at first sight, but a closer study

of its riot of branching and twisting leaf garlands, its crowns and chains, knotted ropes, and knobs of foliage, reveals not only an extraordinary skill in execution, but also a distinct decorative sense. These strange enrichments are for the most part clearly confined within a rectangular boundary, and fill it in the strong southern light amid the surrounding spaces of bare wall in the same way as the bold heraldic panels so frequently seen of Spanish façades.

The Early Renaissance hardly survived the contemporary late Manoelino style. We have seen several specimens of its internal work, and the doorway of the college of St. Thomas at Coimbra shows an external feature in the same manner. One of the cloisters at Thomar is a good example of the Palladian phase of the later sixteenth century. A fountain in the court of the municipal buildings at Oporto may serve as an illustration of the lighter work of the seventeenth.

The succeeding Baroque appears in many forms, few of which are as extreme as the Churrigueresque church decoration at Oporto, which we saw earlier on the Torre dos Clerigos in the same town, begun in 1755 in commemoration of the great earthquake. The great Palace of Mafra, built between 1715 and 1730 for John III., under a Bavarian architect named Ludwig, is a relatively sober design, and, though its detail and features are coarse and perverse, it attains real dignity by sheer size and fine proportions of its masses. Of the Fonte Grande at Leiria, which seems to date at least in part from the Baroque period, it will be admitted that it forms a picturesque setting for the equally picturesque water-drawers, with their amphorae of Classic form.

The library of the University at Coimbra, with its enfilade of arched openings, and the sacristy of the cathedral of Oporto, its painted walls, marble tables, and splendid array of walnut presses with brass fittings, are both examples of interiors of stately proportions and rich colouring.

Like the Escorial, Mafra comprises a convent and a church, as well as a Royal residence. Its buildings form a rectangle of about 800 ft., with domical pavilions at the angles and the domed church in the centre of the façade.

The domestic architecture of Portugal has, as a whole, little to commend it to attention. The general run of houses, both in town and country, is singularly lacking in picturesqueness of form or beauty of decoration, but, in being built of materials harmonising with their surroundings in a manner suitable to the climate and to be devoid of meretricious ornament or ill-concealed attempts at architectural treatment, they possess qualities that are in themselves no inconsiderable merits. The houses are squarely built, commonly without recesses or projections, pierced with square openings and covered with low-pitched roofs. The usual roofing material is the so-called "Italian" or "pan-tile," of a reddish-brown colour; the broad eaves are supported by a kind of cornice formed of several courses of similar tiles corbelled one above the other.

Steeper roofs are not unknown, but they are so rare as at once to attract attention. The buildings of the University of Coimbra, for instance, perched in the most delightful situation in the world at the highest point of a hill city, and overlooking the romantic windings of the Mondego, are greatly enhanced in effect by roofs as steep as those of an old German "hall-church," or "rathaus," and covered with tiles that were once coloured and glazed.

Wrought-iron hooks of more or less ornamental design are often used at the lower angles of hipped roofs to keep the hip tiles in position.

The angles, quoins, and the dressing of doors and windows are sometimes in masonry of the plainest possible description. But, apart from this, the houses are built of brick and rubble, covered with colour-washed plaster, white, blue, and mauve being the favourite tints. In modern times glazed tiles have also come into frequent use as internal wall covering.

The only other class of ornamental features besides those already mentioned consists in the pretty balconies which often jut out from upper storeys. Their stone or marble floors are of every imaginable curvilinear or rectilinear shape, and are moulded on the edges and carried on corbels; while their wrought-iron balustrades are also of very varied design, the uprights being sometimes carried up so as to form a kind of canopy, or to connect the balconies of two or three storeys. Here and there houses in the smaller towns are rendered picturesque by their external staircases with sloping roofs, and country houses which rise a little above the rank of cottages or farmhouses occasionally indulge

in porches or verandahs formed by projecting the roofs some distance beyond the walls and supporting them on stone columns.

In spite of the general southern look of houses such as those described, the Englishman in Portugal cannot help being struck by their possessing one familiar feature which is almost unknown in every other Continental country except Holland—in the sash window. We got it from Holland, and whether Holland got it from Portugal or Portugal from Holland or from us, or all three from somewhere else, seems uncertain. The Portuguese sashes are often of a primitive kind, without sash-lines, fixed at the top, and requiring to be propped open with sticks. There are usually four panes in the width and four in the height, and the window giving rather a squat appearance in many of the houses of Oporto, they are surmounted by a moulded and dentilled transom and a glazed panel with an arched and radiating pattern of glazing about it.

One more Portuguese peculiarity remains to be mentioned before I conclude, though not strictly architectural—the practice of paving the open spaces of the cities with mosaic patterns formed of small pieces of black-and-white stone, such as the “roly-poly square” of the British tar in Lisbon, with its wavy lines, the place at Oporto as the radiating ones, or the humbler market-place of Leiria of my last slide, with its lozenge pattern.

SURVEY OF LONDON MEMORIALS.

A GENERAL meeting of the Committee for the Survey of the Memorials of Greater London was held on Thursday, the 4th inst., at New Crosby Hall, Cheyne Walk, Chelsea. The chair was taken by Earl Curzon of Kedleston, the President of the Committee.

The report showed satisfactory progress, and mentioned that an agreement had been concluded with the London Society for the purposes of co-operative action and to prevent overlapping.

Earl Curzon, in moving the adoption of the report, made an appeal for support of the Committee's work. London was not to them, he said, a vast and purposeless aggregation of human beings. It was a great historical monument, a unique and wonderful treasure-house of the past. It was a place that had exercised a powerful influence upon the life and growth of the nation; and correspondingly the history of our people had written itself in indelible characters, sometimes in savage scars, upon its face. The still existing memorials of the past in London were, his Lordship remarked, disappearing with a rapidity that was truly alarming. Perhaps from one point of view things were not so bad as they were a little while ago. But it was terrible to think of what had been lost during the past thirty years—swept away, wiped out, destroyed. Sometimes the destruction had been due to commercial, economic or sanitary reasons. Sometimes it had been the result of the ignorant or the heedless vandalism of public bodies, municipalities and School Boards. Sometimes an entire locality had fallen into the merciless clutch of the jerry-builder, or again the unskilful renovator—that worst of all human criminals—had been at work in a period of low taste, and had destroyed far more than he had restored. The process was still going on, perhaps on a smaller scale and in less crude and offensive forms. But even if the exterior of an old building was spared the interior was often destroyed. We need only go into the big antiquity shops to purchase a Tudor room, a Jacobean mantelpiece or ceiling, or a Georgian staircase, all taken out of their original setting. The Strand was an illustration; perhaps in its original state this was one of the most picturesque and characteristic of London streets. Every day it was losing some of its old charm and becoming palatial and commonplace. Some of the new buildings were not without merit; others were monstrous. But whether good or bad, the street which they adorned or disfigured was not the Strand of their ancestors. The latter was rapidly disappearing from view.

In some respects, happily, a reaction has set in. It affected both public bodies and individuals. A sense of civic pride in London had sprung up; the consciousness that we had a city which, because it was a jumble of old and new, because it was never laid out like modern Paris on a single plan, but had been allowed to grow up anyhow, and in spite of the hideous and barbarous incongruities which were permitted to be set up side by side, was nevertheless one of the most picturesque cities of the world—perhaps all the more picturesque from the haphazard char-

acter of its upgrowing, the peculiar and at times incredible climate which it enjoyed, and the startling hieroglyphics written by soot and smoke upon its surface.

Public corporations were beginning to show a sense of the value of the antique and beautiful buildings which might happen to be within their area, and almost every borough liked to have its local memorials of the past. There was scarcely a parish in London now which had not its group of local antiquarian students. Simultaneously the necessity for open spaces for the health of the people was preserving from the depredations of the builder many beauty spots that might otherwise disappear. The number of people, indeed, who were interested in old things was daily on the increase.

On the other hand, he was not sure that the growth of the cult of the antique was not in itself a danger, because the dealers were everywhere engaged in despoiling old mansions and searching for obscure treasures, in the desire to gratify the ravenous taste of their customers; and the result too often was that while the object was preserved it was torn away from its original setting, and lost all historical value by being transferred to modern and often incongruous surroundings.

In such a condition of affairs as that there was ever increasing need for the activities of a society that would devote itself to the record of old buildings and objects before they had been ravished by the zeal of the curio-hunter, or swept away by the needs of the times. That was the purpose their Committee had set before itself.

The Survey Committee had wisely joined hands with the London Society, and had a practical division of labour so as to make the best use of the activities of each. The London Society concerned itself largely with provision for the future, for the planning on artistic lines of the new London that was springing up. The Survey Committee devoted themselves rather to the London of the past, and had accumulated a great collection of drawings, photographs, and sketch plans which were available as the material of topographical history, whenever that required to be written. They had undertaken historical surveys of particular parishes, especially those containing historical associations, which were now prepared and printed, under an arrangement concluded with the London County Council in 1910. Bromley and Chelsea had already been done, and St. Giles-in-the-Fields was in course of execution. Further, on their own account they had brought out a series of monographs, written by eminent architects or authorities on individual buildings of historic interest, like the Old Palace at Bromley and Crosby Hall. These publications had a high permanent historic value, and in time would constitute a complete account—an inventory, and much more than an inventory—of London antiquities. Whatever happened to London itself, should it perish by conflagration or earthquake, or be wiped out by an invasion of Chinamen or Malays, or be sacked by an insurgent democracy on the search for rare and refreshing fruits, they would always remain a record of the London of the past. The Committee had rendered other services of no mean value, for its members had done a good deal of independent research work on their own account, and they had been instrumental in preserving many beautiful fabrics from destruction.

The only weak point of the Committee up to the present had been the slenderness of the financial support received. They had a membership of only 130 subscribers, while they should have 3,000. The number would be rapidly increased if it was known that each subscriber received copies of all the beautiful productions which the Committee issued.

Mr. C. R. Ashbee seconded the motion, and the report was adopted.

A series of lantern slides was afterwards shown and explained by Mr. Philip Norman, illustrating the work of the Committee.

1. Progress of the Survey.

The active and honorary members of the committee can alike look back over the period covered by this report with considerable satisfaction. Our co-operation with the London County Council has given further evidence of its vitality in the publication of the second volume of the parish of Chelsea, edited and compiled by Mr. Walter H. Godfrey, assisted by the members of the active committee. It is satisfactory to be able to record that its production has had a distinct effect in increasing the sales of Chelsea. Part I., more particularly during the past few weeks. The members of the Record Staff of the London County Council are now engaged in the preparation of Part II. of St. Giles-in-the-Fields, which

will be published early next year, while our own members are devoting themselves to the parish of Hammersmith, which will come next in order of publication, and will open entirely fresh ground as far as the labours of this committee are concerned.

2. Agreement with the London Society.

During the past year an agreement has been concluded with the members of the London Society, by means of which we have been able to secure an official address instead of, as heretofore, being dependent on the hospitality of our Secretary for the time being. The arrangement has worked well, and we are able to a large extent to deal with the antiquarian matters brought before the committees of the London Society.

3. Finance.

The balance-sheet reveals a much more satisfactory state of affairs than has been the case in the past few years. Back subscriptions and special donations help to swell the total amount received to £316 10s. 9d., and we show only a deficit of a few pounds at the end of the financial year. By the end of the present one we shall be able to place some £30 to the credit of our printing fund, and thus to take the first step towards continuing our series of monographs, which will be welcome news to many of our subscribing members. Our financial position encourages us to look forward to a display of increased interest and enthusiasm amongst both our active and honorary members, and we are confident now the continuity of the work is reasonably assured that new members will join us in increasing numbers, and we particularly draw the attention of the Press to the fact that our efforts neither overlap nor interfere in any way with those of any other Society in London. As we have already indicated, every farthing we receive over and above our working expenses will be put aside to form a fund for printing new publications, but, in view of the rapidity of the destruction of old buildings, it will be well for us to consider the desirability of starting a Capital Fund, the expenditure of which might be spread over a number of years and devoted solely to the preparation of drawings of threatened buildings. It is possible to obtain the help of qualified men who would gladly undertake work for us on these lines, and the active committee would be left free to prepare complete records of the particular parish next in order for publication.

THE OCKENDENS AND HORNCURCH. ESSEX.*

By G. H. COLEMAN.

THERE seems to be considerable diversity of opinion as to the etymology of the word "Ockenden." In Morant's "History of Essex" it mentions that it was in Saxon times called Ac-ing-dun—i.e. oak-pasture-hill, but as there is no sign of a hill anywhere in the neighbourhood, this derivation appears to be somewhat far fetched. But anyway, the name appears to have been a perfect thorn in the sides of the compilers of the Domesday Survey and other records, for it is written as Wokenden, Wokingden, Wochaduna, Wokendon-Rokele, Larkington, &c. From early records the district around the Ockendens appears to have been granted by Edward the Confessor somewhere about the middle of the eleventh century to a Saxon thane of the name of Frebert. From the Domesday Survey we gather that it came into the possession of Geoffrey de Magnaville, and remained in this family for many years. North Ockenden, during the reign of Edward II., came into the possession of John de Malgreffe, and from him to the Baudwins; a monument to one of these is in the north aisle of the church. From the Baudwins it came, by marriage, to the Pointz of Tokington, and continued in that family until the end of the sixteenth century. The church, which comprises a nave, chancel, north aisle and chapel, and square tower, is for the most part Norman transitional, with a Norman entrance doorway. There are several fine brasses, a stained-glass window with the escutcheons of the Pointz, Warren, and Beauchamp families, and a very fine monumental tomb of the Pointz, which, owing probably to the isolated position of the church, is in a perfect state of preservation.

South Ockenden.

In the reign of Edward I. the manors of South Ockenden passed from the de Magnaville family to the

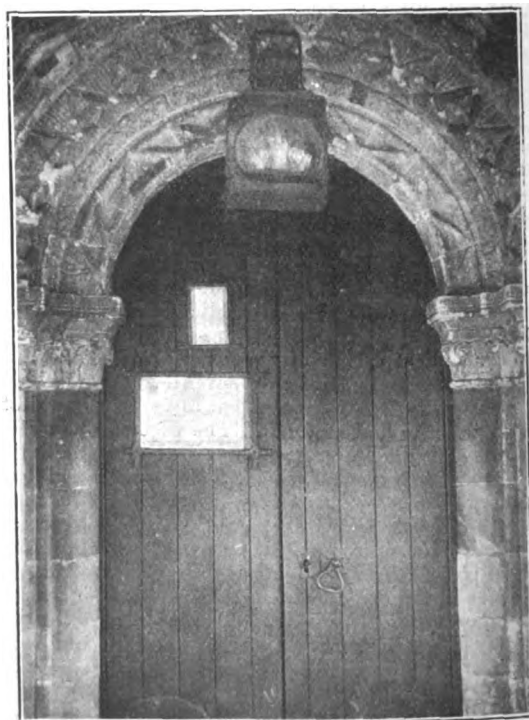
* Read at a meeting of the Upper Norwood Athenæum.

Bruyns; one of these was Chamberlain to that King, and the manors remained in their possession until 1471, when they were divided between two sisters (Alice and Elizabeth), each moiety becoming the property of their respective husbands, and as each of the two sisters were married three times, the different manors passed through as many families. With the third marriage of Elizabeth we are associated with one of the most tragic—certainly the most



SOUTH OCKENDEN CHURCH.

pathetic personages in the history of our kingdom—i.e. Lady Jane Grey, the nine days' Queen, for Elizabeth married as her third husband Sir William Brandon, who acted as standard-bearer to Henry of Richmond at the Battle of Bosworth in 1485, and who, unfortunately for himself, obstructed the way of the redoubtable Richard and paid the penalty of his life in consequence. The son of this Brandon and Elizabeth was Charles Brandon, afterwards Duke of Suffolk and husband of Mary Tudor, widow of Louis XII. of France and sister of Henry VIII. Their



NORMAN DOORWAY, SOUTH OCKENDEN CHURCH.

daughter (Frances) married Henry Grey, Marquis of Dorset, afterwards Duke of Suffolk, and was the mother of Lady Jane Grey, beheaded on Tower Green in 1554. Little appears to be known as to the early history of South Ockenden Church. Newcourt, in his "Repertorium," says: "The church there was in old times only a free chapel, but Sir Maurice Bruyne in 1328 presented it as a rectory." From the style of architecture, however, there is conclusive evidence that there must have been a church here long

before that date. The church, prior to its restoration in 1866, consisted of a chancel, north chapel, nave, north aisle, porch, and west round tower, and the predominant style is Early English of about the end of the twelfth century. The church is interesting, inasmuch as it has



BRASS IN NORTH OCKENDEN CHURCH.

one of the few round towers to be found in Essex, the other round-towered churches being those at Great Leighs, Broomfield, Bardfield Saling, Lamash, and Pentlow. The tower was originally built of rough rubble masonry, the face work of which has been entirely pulled down and refaced with another material; the upper part of the tower has been entirely rebuilt, and is now surmounted by an embattled parapet in place of the wooden-constructed steeple it formerly had. The main entrance to the church is through a door in the north aisle. Buckler, in his history of Essex churches, and mentioning this door, says: "Though small compared with many examples of Norman doors, the variety and combination of the ornaments are remarkable." The church contains a stately Elizabethan monument to the memory of Sir Richard Saltenstall and his wife, erected in 1601. There are also the remains of some very fine brasses, among which is a brass to Ingelram Bruyn, knight, lord of the village, who died August 12, 1400; this brass is unfortunately minus the head.

The little wrought-iron hour-glass standing on the pulpit was found on a rubbish-heap in the churchyard after the restoration in 1866 by a blacksmith in the parish, who faithfully repaired it and again placed it on the pulpit.

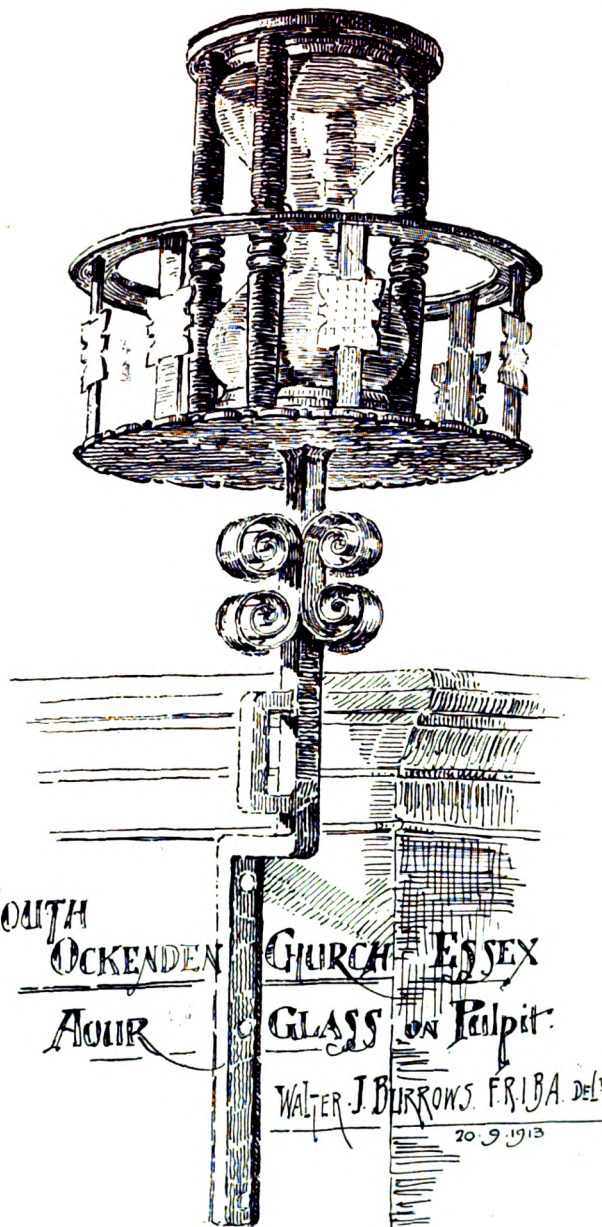
Hornchurch.

This village, from the time of Edward the Confessor down to Henry III. was known as Havering, and the district down to the Thames was known under the same name. Henry II., in granting the church to the brethren of the Hospice of St. Bernard, describes it as the Church of Havering. In the Royal Charter of Henry III., 1253, it is described (in Latin) as the "Monastery with Horns," and in a further Charter of Edward III. it is described (in English) as "Hornchirche."

At the time of the Confessor Havering, which comprised

the present Romford, Havering-atte-Bower, and Stapleford-Abbots belonged to Saxon Harold, and after his death at Senlac the emoluments of the church were given by the Conqueror to the Abbey of Holy Trinity at Caen, and later on, the emoluments having in the meantime lapsed to the Crown, and somewhere about the year 1160, the grant of same was given to the Hospice of St. Bernard.

They despatched twelve brethren and a Prior and formed a cell of St. Nicholas and St. Bernard somewhere in the village, but the position is quite unknown. They held possession for some two hundred years, when they were suppressed. The negotiations took some six years to complete, for to complicate matters Richard II. and his Chancellor—William of Wykeham—recognised as their Pope Boniface IX., reigning in Rome, while on the other hand the Hospice recognised the rival one at Avignon, Pope Clement VII. In Rashdall and Rait's "History of the New College at Oxford" it mentions that the Papal Bulls the college received from Rome describe the Avignon Pontiff (while he was living) as "that son of iniquity Robert, calling himself Clement the Seventh," and after his death as "Robertus damnatæ memoriæ." We get no information of what Robert called his rival, which



is rather disappointing, but there appears to have been some fairly hearty cursing all round, and calls to mind the Cardinal's curse in the "Ingoldsby Legends":

"He cursed him at board, he cursed him in bed;
From the sole of his foot to the crown of his head;
He cursed him in sleeping, that every night
He should dream of the devil, and wake in a fright," &c.

The church, dedicated to St. Andrew, was built between 1300 and 1320 by the Priors of St. Bernard; the tombs of three of these you have seen, two of them being in the chancel and one behind the door of the tower, only one of these, unfortunately, having an inscription, inscribed

"Sire Boniface de Harte Canon d'Aosta." Considerable additions were made to the church at different times by William of Wykeham, who built the tower, and by Ayloff of Brittany, who built the north and south chapels of the choir and was buried on the north side of the altar-rails about 1517.

A descendant of this Ayloff had a most adventurous career; in 1648 he rode with the troop of horse to Colchester, getting there the day before Fairfax closed in around the town and commenced the siege of Colchester. Those of us who were so fortunate as to accompany our chairman on his ramble to Colchester a few weeks back will recall the old siege house, which, although over two and a half centuries have passed away, still bears indelible proof of the gallant fight put up by Ayloff and his comrades.

After the fall of Colchester Ayloff, together with Lucas and Lisle and other leaders, was condemned to be shot; but, more fortunate than they, the sentence in his case was commuted, and he was sent to the Tower, and from there shipped off to Barbados and sold as a slave, where he remained until the Restoration; he then purchased his freedom and came home, and died in 1675.

THE NATURE OF BEAUTY.

THAT the most beautiful must always be that which is the most suitable to its purpose was expounded by Mr. S. C. Kaines Smith, M.A., at the Victoria and Albert Museum, when he led his students through the various courts, taking examples from architecture, furniture, Church vestments, and even manuscripts, to illustrate his theme.

A careful study of mediæval decoration will always reveal its utilitarian origin apart from its actual beauty. As an instance of this, the little carved figures on the landings of the wooden staircase from a house at Montaix, in Brittany, dating from the sixteenth century, were pointed out. They are not newels, properly speaking, for the stairs wind in another direction, and on each floor branch off at an angle, with only three or four steps to reach the landing; and it is here, isolated and apparently without any reason for their existence, that the little carved figures are fixed on the hand-rail at the top of the four steps, but they certainly serve a purpose, for they act as a useful peg wherewith to haul oneself up the remaining few steps, as well as to mark the beginning of the stairs from the landing. Far away, at the other end of the rail, the extreme angle of the wall, lurks another little figure, at the first glance obviously placed there to keep its fellow company, but symmetry was by no means the mediæval artist's only thought; the little crouching animal, somewhat in the form of a bracket, has a function to perform: he keeps away the dust and dirt which otherwise would collect in the corner and work its way into the joints of the woodwork, and, with the addition of damp, become a fruitful centre whence dry-rot and insects would spring.

In modern hotels, hospitals, and other places where health and labour-saving are matters of consideration, these angles are frequently closed in with a curve. This may be more hygienic, but it certainly is less pleasing to the fastidious eye than the little mediæval figure crouching in the corner to receive and throw off the dust with his curved back.

The study of an object at the first glance decidedly unpleasing to some of us revealed many points of intense interest when the origin of its forms was disclosed, showing that it is always advisable and profitable to investigate claims to beauty.

The object was a somewhat overlaid Genoese console of the eighteenth century, supported by four aggressively protruding legs, with swags of flowers swinging between them and a basket of the same in the centre, all heavily gilt.

The protruding leg, with its heavy haunch of seemingly meaningless curves, has nevertheless a certain naturalness of line, and some of its ugliness disappeared as one read into it the goat leg, the leg of the ritual altar or tripod from which it evolved.

A still earlier prototype is to be found in the wooden and ivory ram's legs which supported the beds found in the graves at Tarkhan by Professor Flinders Petrie, dating from before Mena (B.C. 4,000).

Later Egyptian chairs resembled the whole animal. ram's heads ornamenting the back and the four legs supporting the chair. When the seat was piled with ram's fleece the illusion

was complete, and the person was, as it were, seated upon the animal's back. Instead of a ram's hoof, the leg of the console tapers downwards and then terminates in a meaningless volute.

Another curious example was found in a Louis XIV. candelabrum where the order was inverted, the haunch part forming the base and the legs and feet pointing upwards to support the candles, but the animal form was still discernible in spite of the inversion, when once it had been pointed out.

These were examples where, if the utilitarian motive was not easily to be traced, at least the forms could prove their derivation from a custom which had become traditional from the earliest known civilisation.

The Zion cope was an instance of the adaptation of the design to the requirements of the service to which it was put. Spread out in a semi-circle behind a glass case, much of its real beauty is lost, for the greater part of the design is necessarily upside down, whereas on the shoulders of the priest the figures of the angels would have been in position. Its exquisite colour and decoration were all made to fit the requirements of a garment as a garment; when spread out it ceases to be beautiful, for its beauty lies in the shape of the folds and in the design which is planned to follow them.

At the end of the fourteenth century the cope was ruthlessly altered and shortened; the wide band down the front not belonging to the original design at all, as can be seen by the coats-of-arms which on one side are upside down; in this case the purpose of the design was utterly disregarded.

The cope was essentially an utilitarian vestment in its origin, and was merely the parish priest's best coat worn at religious gatherings or feasts. It has never been used at Mass, but is still the ceremonial processional vestment.

The chasuble, unlike the cope, is the chief vestment worn over the alb at Mass. In early times it was a voluminous circular garment reaching to the feet, with a hole in the centre through which to pass the head; there being no sleeves, the drapery was gathered up over the arms and fell in rich folds, the characteristic of so many beautiful brasses.

But this vestment was most inconvenient for the officiating priest; in fact, there were instances of disastrous accidents, so the chasuble in two pieces merely joined on the shoulder was adopted, as it gave greater freedom to the arms; and so the vestment got away from its original shape and lost also a great deal of its beauty; but this only proves once again how beauty must depend upon the use to which it is to be put, and that even in such conservative matters as those pertaining to the early Christian Church utility must be the first consideration, for anything not useful to its purpose ceases to be beautiful.

POST-IMPRESSIONIST AND FUTURIST EXHIBITION.

THE art critic was discussing painting—or, rather, painters—with a lady friend, an artist, whom he had not encountered for some time; and in the course of a few minutes' chat it became abundantly evident that upon nearly all points the two friends differed; she, so modern in her views—he, so Victorian. The few tangential points of agreement served but to accentuate the general want of contact; but in regard to their views as to post-impressionism, the contact was more than merely tangential—it ran in parallel grooves.

For what is this much-debated phase and craze of art (!) at last? The critic sought from his friend a definition of this word, a general definition; and she, like the famous Mr. Silas Wegg, at once "dropped into poetry." With an illuminating smile she quoted:—

"Has Art e'er been defined? It cannot be;

For sure 'tis of all natures, not of one.

It starts with Truth and ends with Truth alone;

And Art is Faith, and Hope, and Charity."

We admit our faith in its final sanity; we indulge our hope in the speedy realisation of this quality; but we fear that our charity is temporarily extinguished when we inspect the latest post-impressionist exhibition now on view at the Doré Galleries, London.

The essence of Art, one would urge with all respect, is to give representations of facts and fancies intelligibly, decorously, and—if the subject permits—harmoniously. It is, of course, necessary to distinguish between the impressionist and the post-impressionist schools; if, as Mr. Frank Rutter tells us in the catalogue foreword, the aim

of the former school was "the instantaneous vision of a whole scene as opposed to the consecutive vision that sees nature piece by piece," certainly the disciples of the latter school indulge in the presentation of what they conceive to be "the consecutive vision" just mentioned.

And it is a veritable battle of the schools; we have the original (though not yet old) impressionists, and thereafter we are confronted—nay, bombarded—by the works of post-impressionists of various kinds—the divisionists, pointillists, intimists, cubists, fauvists, aujourd'huiistes, neo-realists, orféists, and futurists. Alas! what an ungodly crew of—shall we say?—unartists!

By many their works are merely regarded as jokes; to some few (besides themselves) the seriousness is apparent; to very few is it given to bend the knee and worship these revellers in primary colour and crystal form.

But amidst all the works we note with approval some which will serve to leaven the mass and also to show that our own periodical proclivities are by no means narrowly confined. If we frankly avow our preference for the Victorian schools of art we can yet spare willing praise for more modern work, whose sanity is manifest. Manzano Pissarro shows some spirited studies of cocks and hens in a style of Japanese tendency, and Miss Rice, in a sketch of "An Old Woman," has painted with vigour and excellent characterisation, but unfortunately she has indulged in the modern affectation of green splashes cast upon the face. Camille Pissarro's series of works have much to recommend them, particularly "The Little Maid," "Boulevard des Italiens," and "Pilot Harbour, Havre."

Often it is necessary to look again at the catalogued numbers, in order to make sure that the titles are meant to apply; for in a large number of the exhibits the pictures do not prove self-interpretative. M. de Segorzac's "The Boxers" is thus explanatory, but, then, what terrible mis-drawing and what dirty colour are introduced! M. Henri Gensel displays in "The Church of Draveil" a strongly developed sense of chiaroscuro, and the treatment altogether is a relief from the mass of impressionistic work. Ludovic Rodo in "The Winnowers" shows good colour and passably good composition, and of Pechstein's sketch of horses the latter adjectival expression may also be employed. The marigolds of Theo Van Rysselberghe, too, are well massed and toned, and "Reposing," by the same artist, merits attention.

And after these, what? What shall we say of M. Edouard Vuillard's "Child and Grandmother," except that the child is almost merged in the background and the grandmother is a cruel daub? And M. Henri E. Cross, in "Shadow on the Mountains, Provence," has analysed the shadow into its assumed constituent elements most unrealistically and inartistically.

It is when we regard such works as M. Delaunay's "Cardiff Football Team" and Gino Severini's "Polka" and "Valse," Mr. Nevinson's "Waiting for Robert E. Lee" and "The Train de Luxe," Mr. Wadsworth's "L'Omnibus," M. Henri Doucet's "La Cueillette," and the various works of Mr. Wyndham Lewis, that we begin to ask (as do so many others) whether it is a ponderous jest which is being foisted upon the public. But no! We are to believe that such work "is a reaction against the stern intellectual discipline which true impressionism necessitates." It would seem, too, that the craze for cubism, futurism, and certain other "isms" is a development of "the sectional statement of divers aspects of different things . . . with an accent on the expression of movement." But we do not desire sectional statements in Art; let us leave the work of articulation to the scientists.

In the midst of all this piff-paffery we may spare some commendation for the water-reflections in Mr. Wadsworth's water-colour sketch, "The River." Mr. Wyndham Lewis' colossal "Kermesse" seems to be *le dernier cri* in the battle of the elements, and in viewing the same painter's "Nostalgia" we cannot conceive that the sufferer's kinfolk are as anxious for his return as he is himself. Regard, too, Mr. Etchell's contributions; assuredly Mrs. Grundy herself would raise no prurient outcry against such a "Study of the Nude"; a "Head" and "Sketch of a Woman" by the same gentleman, both of them in tempera, are sufficient to put an art lover out of temper (if the poor pun may be condoned for the sake of the truth). The latter sketch looks like nothing so much as stratified rock. Mr. Fergusson shows us "Eve" (in No. 60) and "Rhythm" (!) in No. 83, the latter being, to all appearances, meant to represent the same "mother of all living." What was it Milton said of the prot-

origines? "Adam the comeliest of all his sons; the fairest of her daughters, Eve." Mr. Fergusson has not shown us Adam, but let us hasten to congratulate the latter upon being rid of such an unpleasant rib, and, furthermore, let us offer our belated condolences to Cain and Abel during their unweaned months.

Vincent Van Goch shows many works, which we cannot honestly commend, and we trust for the sake of his facial appearance that he has misdrawn himself in No. 89. And what can anyone urge in favour of such a repellent study as Pablo Picasso's etching (No. 126), or of M. Marc's absurd "Two Female Figures," or of M. Henri Matisse's series of studies?

A severe critique, this? Perhaps it may seem so to such as have not seen the exhibition; but let the public judge for themselves—they may feel secure, at least, of being diverted if they merely attend as a pastime, and such as go to laugh are not likely to hurry away. We, however, were in no degree loth to depart; and though much has been left by us unnoticed here, it is mostly of a character and quality to meet with our condemnation—not with our approval, though this would be more in accord with our kindly closer propensities.

WINTER EXHIBITION OF THE ROYAL SOCIETY OF PAINTERS IN WATER-COLOURS.

THIS is one of the societies whose shows are convincingly good, one where the public need have no fear of being defrauded of its entrance fees by any lack of value for money paid. But the present exhibition is not merely convincingly good, it is surpassingly so. Naturally there are works that do not appeal to individual critics, but they are not of necessity unmeritorious for that reason. And, equally naturally, there are works which, while appealing so far as subject is concerned, must yet be disapproved on the score either of technique or colour or otherwise. The President's work may possibly prove of the most attractive, and, whilst we do not disguise from ourselves the virility of touch as a pervading characteristic, yet it is other qualities that will provide the special charm in the eyes of an admiring public. Sir Ernest Waterlow is a prolific painter, but he is something more than that—his genius is touched with the wand that transmutes actuality into poetry; "Ogmore Castle" is just what one wishes to hang on one's walls, and "Sundown" is a delightful little study of trees, a wayside bank, and a rutty lane; but the very best of his dozen exhibits are the two Wengen studies, "Winter Snow" and "Winter Twilight," though the snow scene surpasses in poetic conception and realisation. The Vice-President, Mr. Alfred Parsons, shows four works, two already sold at the time of our visit. One of these, "A Foreground Study," merits high praise, and his work in general is good. Mr. Arthur Hopkins deserves similar commendation, and attention must be specially directed to "The Diver" for its forceful presentation, good pose and flesh tones, and general excellence. Mr. Hughes-Stanton indulges in a heavy style of technique that does not attract us. Mr. Napier Hemy is always attractive for the virile breeziness of his ocean studies. Mr. W. Eyre Walker is one of the successes in the exhibition, "At the Back of the Sandhills" and "Sunshine on the Sandhills" calling for special notice. "The Courtyard of the Lions, Alhambra," must be referred to for the unusually good treatment of the ornament and decoration, the "suggestion" being very artistic. We do not understand Mr. Clausen, who can do and has done such good work in the past, turning out such daubs as we see here, but "A Spring Morning" stands out pleasantly after viewing his other works. Mr. Lorimer's "Starlings on the Roofs" is a silly subject, or no subject at all. Mr. R. W. Allan presents us with mixed work. "Brixham Harbour" is one of the very good exhibits, and "Lossiemouth Harbour" runs it very close in merit; but, if we refer to silly subjects, how otherwise shall we designate "The Restoration of Buckingham Palace"? and the Victoria Memorial, as therein shown, is deprived of all its inherent charm.

Mr. Henshall is as good as we expect him to be; there is in "My Ain Folk" and "Good News" a certain Dutch feeling, with English sentiment superadded. Mr. Charles Gregory has half a dozen of his characteristic landscapes on view, but there is a suggestion of tameness even amidst the charm. We are far from attracted by Mr. Sullivan's black-and-white conceptions of the pots in Omar Khayyam's poem. Mr. E. R. Hughes' portraits are in general satisfactory, but we fail to appreciate "The Bridesmaid." Of

Mr. Walter Crane's exhibits we must take note of three. "A Rustic Pergola" is delightfully presented, but we are even more attracted by his decorative schemes for lunettes in the Royal West of England Academy; he knows so well how to "fill" his spaces, and, whether the scheme of colour be bright or subdued, it is sure to be harmonious. Mr. Albert Goodwin's work we always appreciate, and of his six exhibits perhaps the best is "Where Ganges Falls to Sea," a brilliant painting of a brilliant sunset. Mr. J. C. Dollman's "Orpheus" is certainly by the creator of "Circe," exhibited in a previous exhibition; the lions here depicted, as well as in No. 173, are excellently done; but Mr. Dollman is a many-sided man, and we should not do him justice if we failed to notice his portrait of the President, and also his fine study of peacocks in No. 136. Mr. Cameron's "Glen Rosa" is very harsh, very unmodulated, and rawly coloured. And here space fails us for further notices.

ARCHITECT'S CLAIM AGAINST A BROTHERHOOD.

In the Court of Appeal on Tuesday the appeal of the defendants in the action of Walker v. Sur was heard from an order of Mr. Justice Bucknill. The plaintiff, Mr. Charles Walker, an architect at Newcastle-on-Tyne, is bringing an action against J. Marin Sur, Joseph Gaeth, and Augustus Metzler, of the Hospital of St. John of God, of Scorton, Yorkshire, and Pacome Hughes, who are sued on their own behalf and on behalf of all other members of the Brotherhood for £500 for professional services rendered, work and labour done, and money expended on behalf of the defendants as their architect.

Mr. Sparkes, for the appellants, said they appealed against an order of Mr. Justice Bucknill, which was to the effect that the four defendants should defend the action on behalf of or for the benefit of all persons interested, the plaintiff undertaking, in the event of his obtaining judgment, not to take any proceedings upon it out of the jurisdiction. The writ not only purported to sue the four persons, but all other members of the Brotherhood, who were about 1,800 in number, and were scattered over Italy, France, Spain, Germany, and other parts of the world. That, he submitted, was the wrong order for the Judge to make, and could not be made under the rule which it had—Order 16, Rule 9. When the matter was before Master Archibald he was asked for a representation order that the four defendants named on the record should be ordered to defend for all the Brotherhood, but he refused to make that order, saying they were out of the jurisdiction, and there had been no attempt to serve a copy of the writ on any of them. He offered the other side a representation order as to all the members in England. Then Mr. Justice Bucknill was appealed to, and he made the order complained of. This being a debt, he contended that a writ must be served upon every defendant against whom it was intended to ask for judgment. They could not seize a man's goods under a writ of *fi fa* unless he had been served with a writ. In the authorities—the Club cases—the people sued had been served individually, but there had been no representation order made. The centre of government of the Brotherhood was in Rome, where there was a Superior General and a General Council.

Mr. Lowenthal, for the respondent, said the plaintiff contended that no member of the Brotherhood—at any rate, the majority—possessed individual property, and that no individual member would ever think of contracting on his own behalf any debt. What was done by the plaintiff was done for the Brotherhood. The orders were given verbally by the defendants on behalf of the Brotherhood.

Mr. Sparkes denied that, and said there were no letters containing any such suggestion. The defendants had no interest here. In the words of the Act, "it is not an interest, but a burden."

Lord Justice Vaughan Williams: If a man is sentenced to be hanged has he no interest?

Mr. Sparkes: No, it is only a burden.

Counsel went on to say that this Court had no jurisdiction over a foreign Society or a foreign membership.

Mr. Lowenthal having supported the Judge's order,

Lord Justice Vaughan Williams said in his opinion the order was wrong. Such an order could not be made under the rule against an unincorporated aggregate of persons. Therefore, the order should be discharged, and the appeal allowed, with costs.

Lord Justice Buckley concurred. What the order meant

was that if judgment were obtained against the four defendants on the property in Yorkshire they would only obtain what was each man's individual share. That showed the defendants were not representative of the Brotherhood.

Lord Justice Kennedy agreed.

COURAGE IN COLOUR.*

By R. GOULBURN LOVELL, A.R.I.B.A., Vice-President S.A.

In these northern climes there is a shrinking from the dignity of pure colours, a fear that they may be termed gaudy; there is a general lack of courage in applying any colour to one's surroundings excepting tertiary tones and greys. Already, however, there are indications that the "colour sense" is awakening, and that the feeling for pure colour is growing. The movement is one which is likely to be accelerated year by year.

The main barriers to that movement are the want of accurate knowledge of colour combination and the lack of courage in their use, inducing restraint and limitation to drab greys and sombre shades.

The healthful influence of colours is of commanding importance. To appreciate bright colours is a sign of health and the gift to mankind of flowers is surely nature's kindest grace. How often will a little child go wild with joy at the sight of brilliant flowers, and who shall measure the influence of colour in shaping the faculties of the rising generation at the time of life when the mind is most receptive?

A knowledge of the theory of colour will place a much-needed tool in the hands of the architect, the designer, and the decorator.

Definition of Colour Terms in Practice.—Very often confusion arises through the careless or vague application of terms in describing colour and its qualities. It may be advisable here to explain briefly the theory of colour-production and to make clear the exact meaning of the terms employed in dealing with the subject.

A spectrum shows the component parts of a ray of light separated from one another so that each part or colour may be seen separately. A common glass prism held to the light will produce a spectrum of colours. The spectrum most seen in nature is that of the rainbow, where the rays of light are separated from one another by the dispersion of the light in drops of water. In the rainbow or glass prism each colour may be seen separately, although they merge together by indeterminate gradations in the following manner: from reds to oranges, to yellows, to greens, to blues, to violets. These form the spectral colours. From this it will be seen that a white ray of light can be resolved into the colours of the rainbow, and that all the colours of the rainbow together produce a white ray of light. This unity of white is produced by a combination of the three primary colours.

The primary colours are those which cannot by any known process be further resolved. They are not produced by the combination of other colours. The primary pigments of the palette, red, yellow, and blue, are not the true primaries of the spectrum, inasmuch as they only produce a pale grey-white. As pigments, however, they are employed as primaries for the production of other colours.

Secondary colours are combinations of two of the primaries, for instance, red and yellow=orange, yellow and blue=green, and blue and red=violet. These secondary colours may incline more or less to either of the primaries, thus producing what may be termed intermediate secondaries. They may be called red-orange, yellow-orange, yellow-green, blue-green, blue-violet, and red-violet.

Pure colours are the pure washes of the three primary, the three secondary colours, and their six intermediate tones. Not more than two of the primaries are employed to produce any of these colours or tones. If a third primary were employed it would dull their purity.

Broken colours are the pure colours broken up by the addition of white or broken down by the addition of black. Broken colours, therefore, are the dulled tones of pure colours; not only is the purity affected, but in some degree the tone also. For instance, black added to yellow gives it a greenish tone.

Tertiary colours are combinations of nearly equal proportions of two secondaries, thereby introducing some of the

* Abstract of a Paper read on December 11 before the Society of Architects.



VILLA ROSA, CORLANZONE, ITALY.—Professor ALFREDO MELANI, Architect.

third primary. Orange and green=citrine, green and violet=olive, and violet and orange=russet. Citrine, therefore, although composed principally of yellow, has a due share of blue and of red. Olive and russet are also composed of the three primaries. Every mixture of the three primaries is a step towards blackness until, with balanced proportions, actual black is produced. The tertiary colours may incline more or less to either of the secondaries, thus producing a change of tone. Tertiary colours in their lighter tones are called greys.

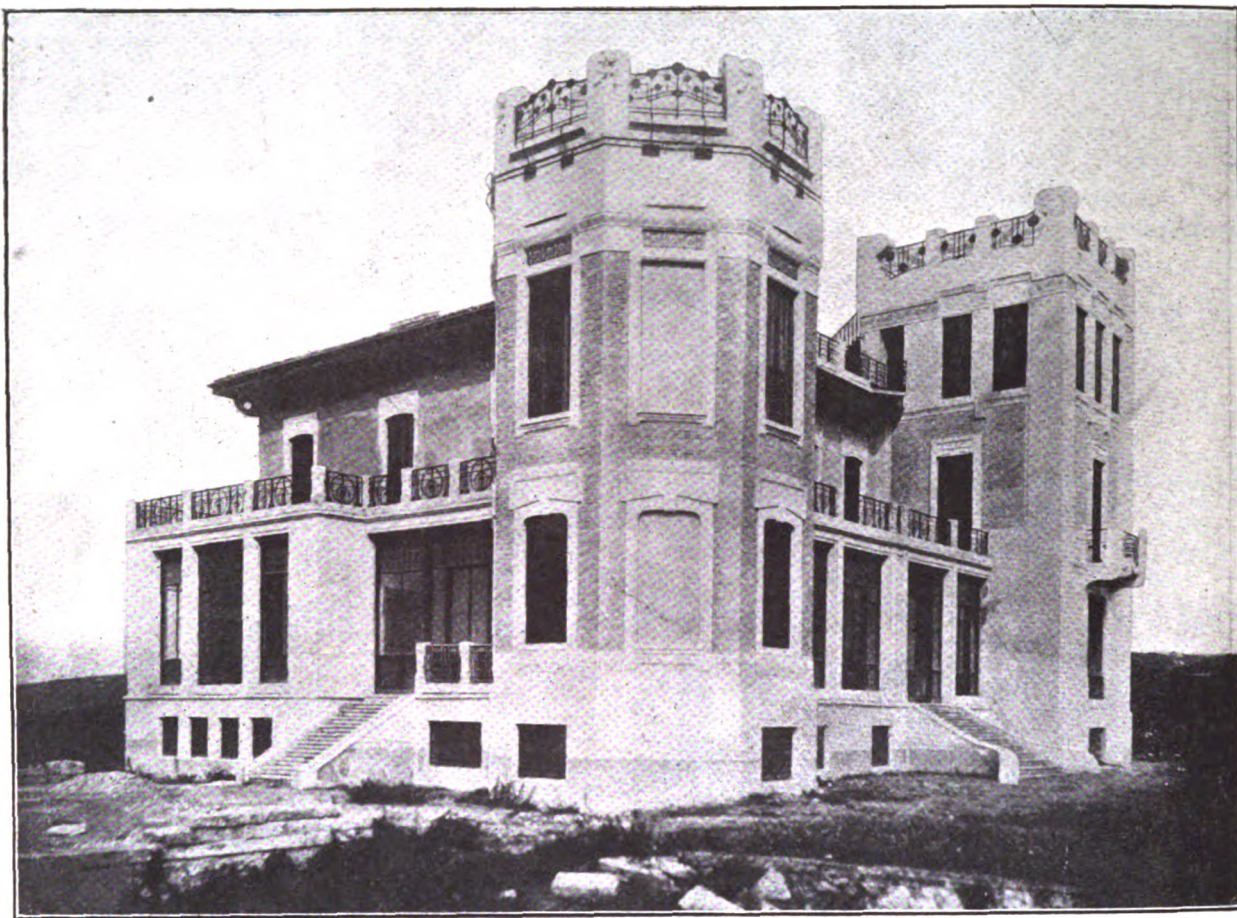
Complementary colours are those which contain the completing or finishing colour or colours necessary to form the spectrum or white light; for instance, we know that the primary pigments red, yellow, and blue produce a pale grey-white, therefore the complementary colour of red would

be the completing colour green (yellow and blue), the complementary colour of yellow would be the completing colour violet (red and blue), and the complementary colour of blue would be the completing colour orange (red and yellow).

Warm and Cold Colours.—Those colours in which red or yellow predominate are called warm colours, and those in which blue predominates are called cold colours. It is possible to use the term warm or cold to an individual colour; for instance, a violet-blue might be termed a warm blue or a cold violet, a yellow-green might be termed a warm green or a cold yellow, &c.

Gradations are the gradual changes from colour to colour, and from light to dark.

Shades are the gradations of a colour from light to dark by the addition of white or by the addition of black.



VILLA ROSA, CORBLANZONE, ITALY.—Professor ALFREDO MELANI, Architect.

Tones are the gradations of a colour by the addition of another colour. They are, of course, innumerable; a whole scale of red shades may be altered in tone by the introduction of blue, thereby making the reds more violet, or by the introduction of yellow, thereby making the reds more orange.

Tints is similarly employed for pale shades. It is mainly significant of self-colouring, as the tints of autumn leaves.

Scale is a collection of the tones of a colour, including its shades and its tints.

Chromatic scale is the entire gamut of the primary and secondary colours, with all the intervening tones and shades.

Chromatic circle is an arrangement of the colours in a circle so that the reds join with the violets.

Brightness of a colour depends upon the amount of light that it reflects, and is independent of its purity. Lighter tones or tints possess more brightness than the darker tones or shades.

Intensity is the quality of a colour in which the greatest purity and the greatest brightness unite—so much so that if the brightness were increased the purity would decrease.

Contrast is the effect produced by the nearness of two or more colours, tones or shades. For instance, if red and yellow be placed together they will affect each other; the red will acquire a slightly violet tone, and the yellow will acquire a slightly green tone. If a dark and a light shade of any colour be placed together, the dark will appear darker and the light lighter.

Simultaneous contrast is the effect produced when two shades or colours are seen together. For instance, they will appear as dissimilar as possible, both in the composition of the colours and the height of the shade. The results may be harmful or beneficial to each other.

Successive contrast is the effect produced when two shades or colours are seen after each other. For instance, having looked for a certain length of time on one colour, it will be found that the next colour looked at will be affected by the complementary of the colour of the first. The result may be harmful or beneficial.

Harmony of colour consists in a combination of many qualities subjected to the same influence to secure one pleasing purpose; for instance, the harmony of colour by grada-

tion or by contrast, the harmony of tone, the harmony of proportion or balance, &c.

Beautiful Colouring.—The theory of colour-production depends upon the combination of the primary colours in different proportions, and it must be noted that true value of the colours depends upon the juxtaposition of one to the other. Colours are so altered by the manner in which they are seen together, that it becomes essential for all users and sellers of coloured goods to acquire some knowledge of the theory of colour-production and colour-selection. They will, in their everyday occupation, easily realise how to obtain the best advantages from colour, whether in the manner of presenting coloured goods in windows or show-rooms, or in securing the best combinations for wearing apparel, or for the decoration of the home.

There is a great difference between appreciation of colour and manipulation of colour. Any one can be schooled to a proper appreciation of colour.

In tropical and sunny latitudes less courage is required in using bright colours, because the brilliancy of the sun subdues them, and the people in these countries have rightly appraised the value of this property of light. Northerners, however, require stimulating colours more than those who live in warm sunshine, and fortunately bright colours have a greater force in dull climates.

We have been so accustomed to the dowdiness of drabs and the gloominess of greys that it is even assumed that people of taste should admire dull colours, and that only vulgar persons like bright ones.

The love of colour, however, is now awakening, and we can expect with certainty a greater luxury of pure colour inside our houses. In time more of it may peep out of doors, and then show itself quite bravely to cheer the grey-ness of our towns.

In considering the application of brighter colours in our homes and surroundings, the two main attributes of beautiful colouring should be insisted upon—gradation and contrast. The sellers and users of coloured materials will realise the importance of grasping these two essentials in their everyday application.

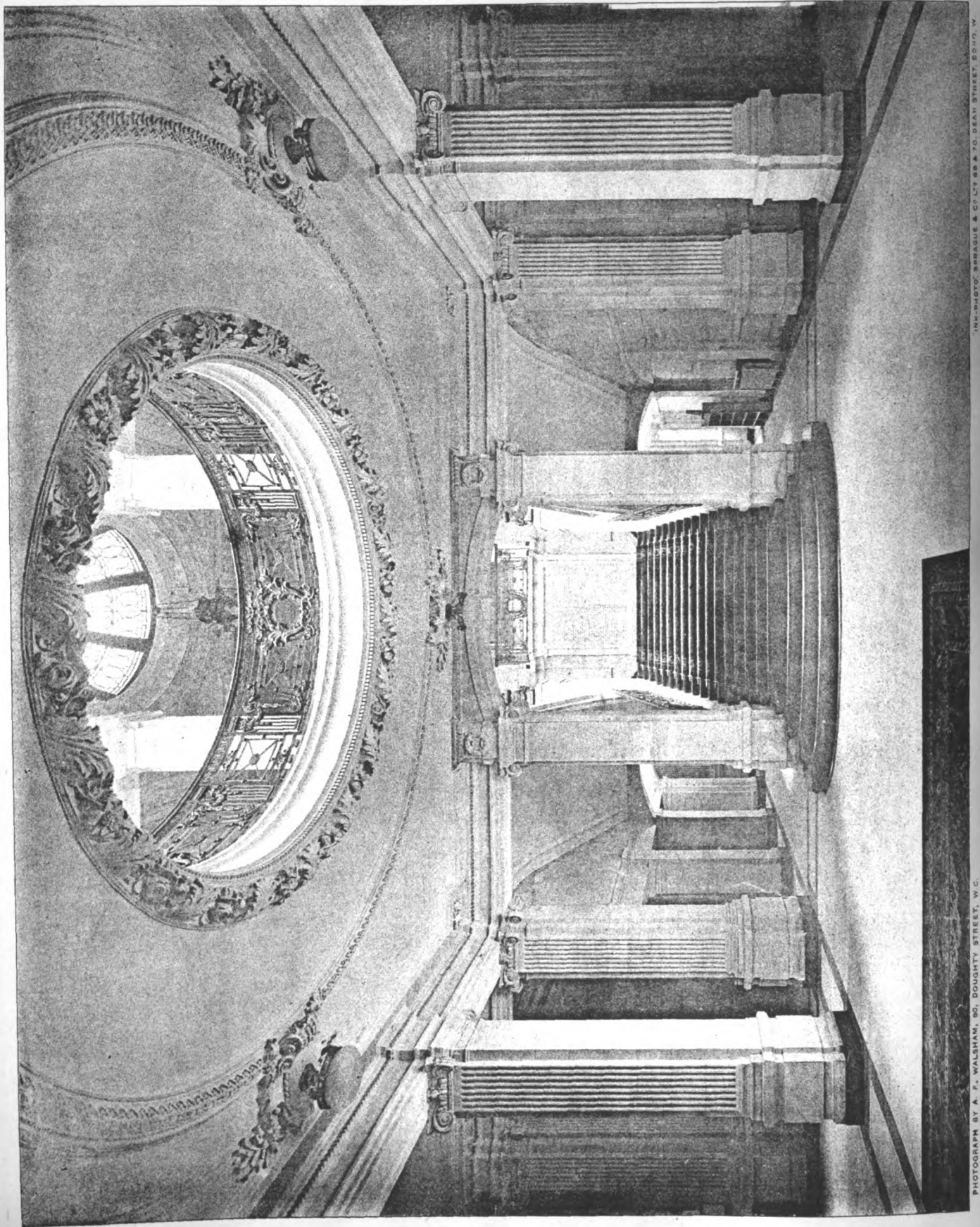
Gradation in Colour.—The first essential of beautiful colouring is gradation. No entirely-beautiful colour exists



PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

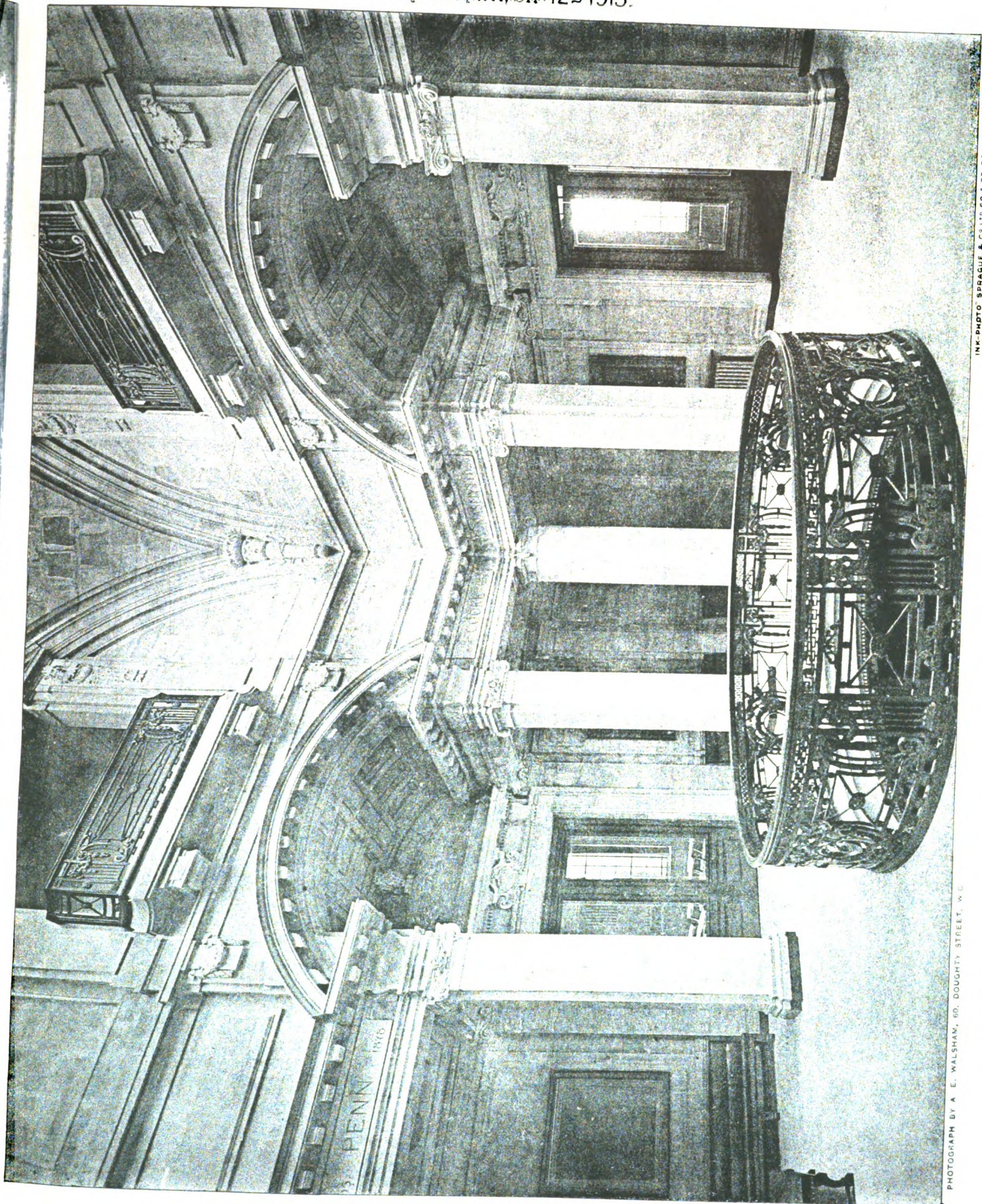
THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—DOORWAY, GREAT HALL.
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.



PHOTOGRAPH BY A. F. WALSHAM, 90, DOUGHTY STREET, W.C.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—ENTRANCE HALL.

"IN-PHOTO" BRASSIE & CO. LTD. 88 & 90, DEAN STREET, SOHO, W.



PHOTOGRAPH BY A. E. WALSHAW, 60, DOUGHTY STREET, W.C.

INK-PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—FIRST FLOOR LANDING
MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.



PHOTOGRAPH BY A. E. WALSHAM, 80, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD 69 & 70, DEAN STREET, SOHO, W.

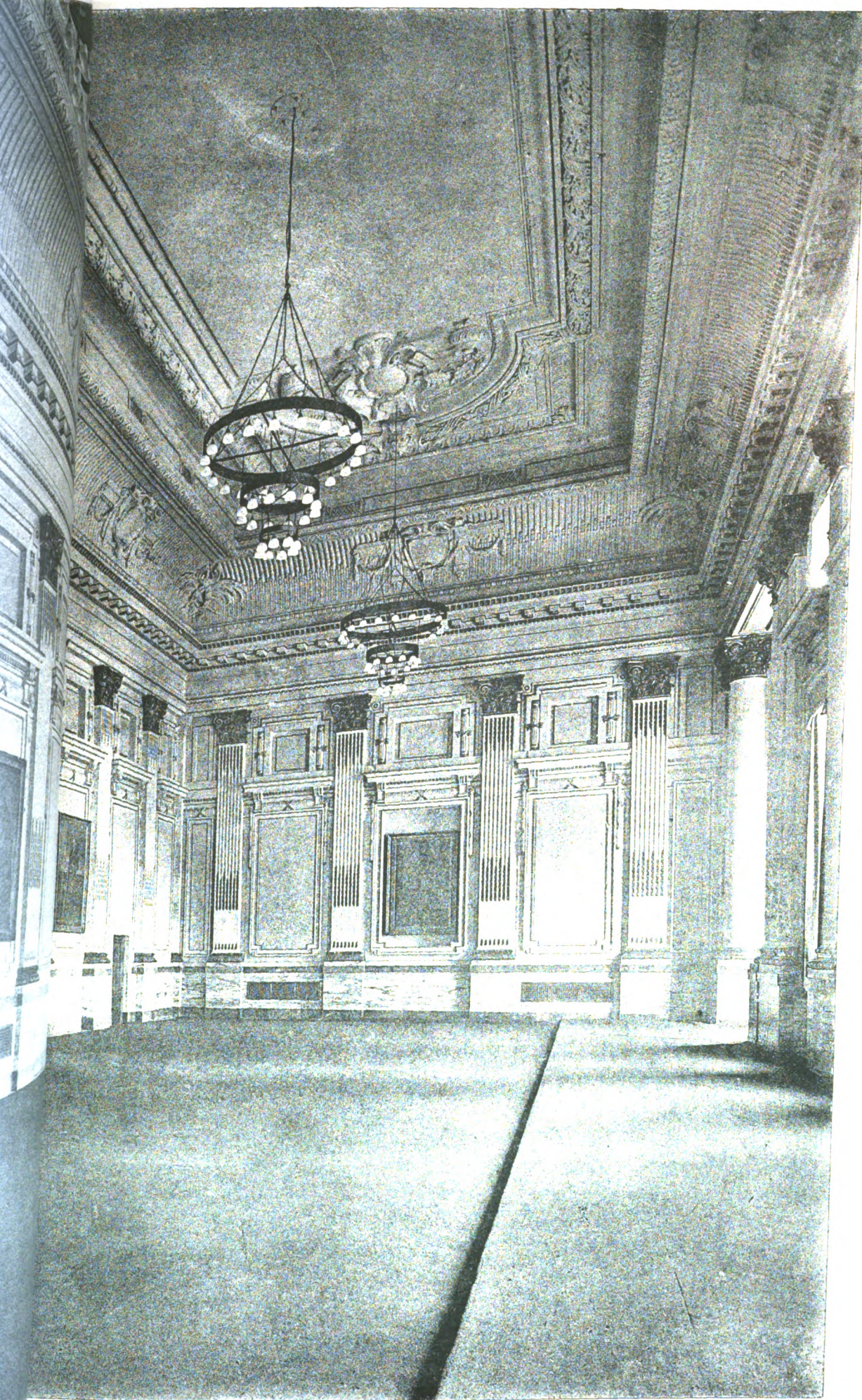
THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.—FIREPLACE IN READING ROOM.
Mr. JAMES MILLER, A.R.S.A., F.R.I.B.A., Architect.



PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

THE INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER, LONDON, W.C.2.
MR. JAMES MILLER, A.S.E., F.R.I.B.A., ARCHT.

12th 1913.

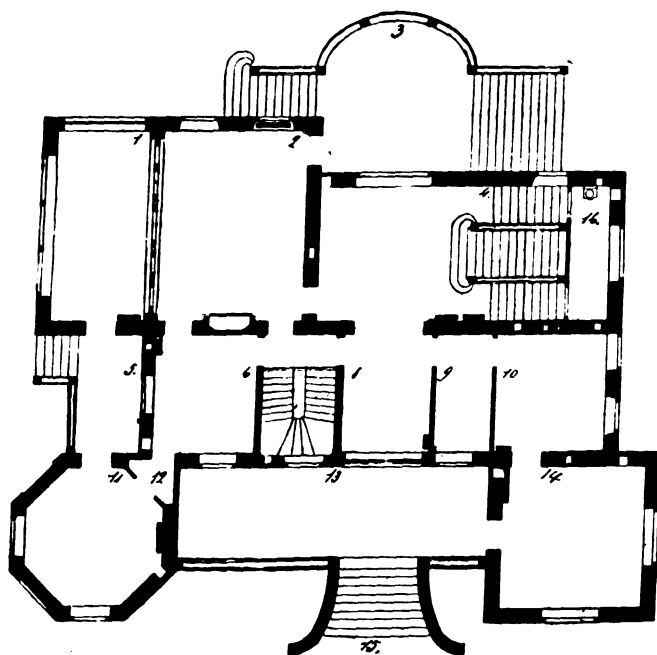


INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

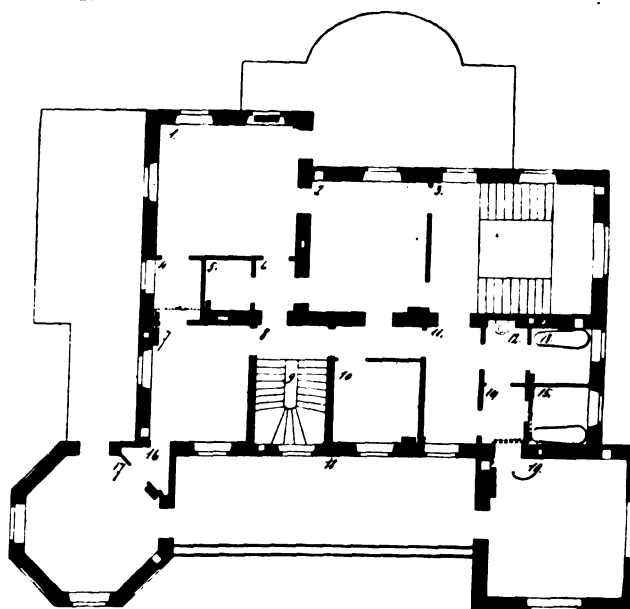
REET, WESTMINSTER.—GREAT HALL FROM NORTH END.
F.R.I.B.A., Architect.



VILLA ROSA, CORLANZONE, ITALY.—Professor ALFREDO MELANI, Architect.



VILLA ROSA.—GROUND FLOOR.



VILLA ROSA.—FIRST FLOOR.

without the quality of gradation. The most subtle beauty in colour is that of gradation, either of tone or of shade. Gradation is to be seen everywhere—in sky, on earth and water.

Plain-coloured surfaces, under most conditions, emphasise the most beautiful attribute of colour, that of gradation. The play of light on a surface produces a far finer and more luminous gradation than any made by pigments. The effect is almost as fine on the plain-coloured walls of a room as on the folds of a curtain or on those of a robe. The difference between the deepest shade and the lightest tint is truly amazing. These gradations are a constant delight to those who look for them.

Contrast in Colour.—The second essential of beautiful colouring is that of contrast. Practically all gradations are beautiful. All contrasts are not. It is the bad con-

trasts that usually constitute bad colouring. The everyday application of beautiful colouring requires that the theory of contrasts should be appreciated and understood. Contrasts are known either as simultaneous or successive contrasts. There are contrasts of shades, contrasts of tones, and contrasts of shades and tones. These are the qualities of contrasts. Contrasts are bad either in quality or quantity.

The sellers and users of coloured materials will realise that to safely employ courage in colour it is necessary for them to understand and avoid bad contrasts.

If two colours are seen together, either at one time or within a very short interval of time, they will appear as dissimilar as possible, both in regard to their shades and colours.

To appreciate the development of the chromatic scale, an

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:
1 Newman Street, W.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2731 Gerrard.

Telegrams {"Anaglypta, London."
"Anaglypta, Darwen."}

**LINCROSTA-WALTON.
CAMEOID & CORDELOVA**

London Show Rooms:
1 Newman Street, W.

London Tel. No.: 3769 Gerrard.

Telegrams: "Lincrosta-Walton, London."

LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East.

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.

SPECIFY

CLARIDGE'S

PYRIMONT-SEYSSEL

ASPHALTE

FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.

CLARIDGE'S PATENT ASPHALTE CO., Ltd.

21 SURREY STREET, STRAND, W.C.

TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."



SAVOY HOTEL GARAGE, BOURNEMOUTH
FITTED WITH 15 KINNEAR PATENT STEEL ROLLING SHUTTERS
BY ARTHUR L. GIBSON & CO. RADNOR WORKS, TWICKENHAM.

ARTHUR L. GIBSON & CO.

Radnor Works, Strawberry Vale,

TWICKENHAM.

SOLE MANUFACTURERS OF

Kinnear Patent

Steel Rolling Shutters

FOR

TRAMCAR DEPOTS,

GENERATING STATIONS,

BOILER HOUSES,

ENGINE SHEDS,

WAREHOUSES,

GARAGES,

And Entrances Generally.

MANCHESTER:

33 Arcade Chambers,
St. Mary's Gate.

GLASGOW:

79 West Regent Street.

interesting experiment can be made with an ordinary prism of common glass. Hold this to the light and turn until the spectrum is seen red on top and violet below; turn until these colours join in forming a band of bright red, green, and violet. Slightly turn the prism again, and the band broadens to reds, oranges, yellows, greens, blues, and violets. These and the innumerable gradations existing between all of them are the spectrum colours which we strive to imitate with pigments. All pigment colours are dirty compared with the spectral colours. The nearest approach to them is to be found in fine stained glass held to a bright light.

Courage in Colour-Selection.—To revert to the consideration of contrasts, colours may be chosen so that they are mutually helpful and appear precious and beautiful, or they may be mutually harmful and appear either glaring and gaudy or dull and dirty.

Contrasts of Tone.—We know the most helpful contrasting tones to be the complementary colours.

Bad contrasting pairs of colours are those closely related, or those standing near each other on the chromatic circle without any gradation between them. For instance, red and orange, blue and violet, green and blue are all bad contrasting pairs of colours, particularly in the lighter shades. It will be noticed that these are less than a quarter of the circle, or 90 degrees, apart.

A good method of obtaining an uncommon and effective contrast is by pairing related colours not less than 90 degrees apart. For instance, red with yellow-orange or orange with violet-red will make a courageous combination that could be well employed to produce a striking effect. The same may be said with all the other colours similarly placed; blue and violet-red, or violet and green-blue and green and violet-blue, or blue and green-yellow.

The names employed are used arbitrarily to cover a group of colours, tones, and shades, which owe their origin to these primary or secondary colours. A very small proportion of actually pure colour is seen in nature; it is usually surrounded with its own tones and shades, and they in turn are supported by the greys and broken colours of the same or other groups of colours.

(To be concluded.)

NOTES ON BOOKS.

"Building Code." By F. W. Fitzpatrick. (Chicago: American School of Correspondence. London: Crosby Lockwood & Son. 4s. 6d. net.)

MR. FITZPATRICK (who has contributed ere now to the pages of *The Architect*) has compiled in the work lying before us an ordinance consisting of close upon five hundred sections and occupying more than one hundred octavo pages in small type. "This building code" (we are told) "is based upon the best ideas of all the codes heretofore published, as well as upon the personal views of the author." Doubtless its provisions will tend to the establishment of Sir Henry Wotton's definition of architecture as "the art of well building," but the production of any piece of work will entail terrible strain upon the architect as designer, and the pains and penalties attaching to those subjected to this drastic Building Act may be surmised when we read in Section 9, "it shall be unlawful and subject to the penalties hereinafter provided to erase, alter, or modify any line, figure, or colouring contained upon drawings or specifications that in any way affect the structural, sanitary, or essential features of a building, after they have been stamped by the Building Department or filed with it for reference;" but, except where otherwise prescribed, one hundred dollars is the maximum fine for each violation, so that an architect can hold himself in check.

According to Section 356, each person in a theatre is allowed only 1½ feet superficial, inclusive of foyers, lobbies, &c. This is a terrible crush, and we think that there must be a misprint somewhere. But we do not wish to cavil; despite various marginal notes entered by us here, there, and elsewhere, it must be borne in mind that American ideas differ from ours—and who shall say which are the better? And undoubtedly the majority of the sections are commendable.

"The Clerk of Works." By George Metson, author of "The Builder's Foreman," &c. (London: Crosby Lockwood & Son. 2s. 6d. net.)

As the author states in a prefatory note, "this little handbook is primarily written to be of use to those successful

applicants for the position of clerk of works on first appointment," and it is to such beginners that we consider the main usefulness of the manual would apply, though we agree that "it is possible that those who have held the appointment for some years may gain some assistance from a perusal of its pages." The book contains twenty chapters severally dealing with the qualifications for the post, duties, and responsibilities, the various trades, office and office work, "give-and-take" policy, and salary; and though there is an entire absence of literary style, this does not evilly affect the practical value of the advice offered. Stress is not unnaturally laid upon the workmen and the clerk of works being in opposite camps, and until Utopia arrives in all its blessedness, it is necessary for opposing forces to buckle on their armour. Here and there we meet with expressions of views with which we are not in accord, but it is doubtless a matter of taste, such as, for example, "nothing looks worse than to have a glazed brick wall of varying shades," the colour of terra-cotta to be "of one uniform tint," &c., but our points of difference of view are surprisingly few, and we can commend the book to those for whom it is written.

"Public Baths and Bathing Places." By E. Harding Payne, A.R.I.B.A. (The Southern Counties Amateur Swimming Association. 6d.)

It is always well that those who write on any subject should have practical knowledge of it, and it is under such conditions that Mr. Payne has prepared this interesting pamphlet, whose scope will be best indicated by transcribing its full title: "Suggestions on the General Arrangements, Structure, and Equipment of Public Swimming Baths and Bathing Places." But we must convict Mr. Payne of error when he says on page 4 that "the number (of baths) of the lower class must be at least double the number of the higher class or higher classes added together." This required minimum of duplication is only where the classes are but two in all; when they exceed this, then the Act of 1846 requires as a minimum merely equality between the lowest priced and all the others; under the amending Act of 1847 this provision was extended so as to apply to washing-tubs also. There are numerous illustrations, but the plans would benefit by being to a larger scale and with clearer lettering. The adverse criticism upon extra dressing-boxes arranged in transeptal bays is, we consider, well founded; such positions are but conducive to theft.

Expenditure on public baths out of the rates is certainly more commendable than much of the outlay at present incurred, and we would willingly see an increased rate for the development of public cleanliness were it accompanied by diminished expenditure in other directions.

"Cranes and Hoists." By Hermann Wilda. (London: Scott, Greenwood & Son. 3s. 6d. net.)

MR. CHARLES SALTER has devoted much labour to preparing a very good translation of Herr Wilda's German text, and has (it may be assumed) merely, in the process of translation, adapted the contents as far as necessary to British practice. The manual forms the sixth volume of the English publishers' Broadway series of engineering handbooks, and the text is copiously illustrated by means of some four hundred diagrams, though we would point out that figs 11-16 would be clearer if the sectional elevation of the cut links was shown. But, when all is said, this is not exactly the class of book to appeal to readers of *The Architect*, except here a one and there a one. The description of the various kinds of brakes may be thoroughly commended for its perspicacity. Here and there we note some clerical errors, which will doubtless meet with the necessary emendations in a future edition.

"An Historical London Church." By T. Francis Bumpus. In commemoration of the sixtieth anniversary of the church of St. Matthias, Stoke Newington, Mr. Bumpus (who must be well known to readers of *The Architect*) has prepared a history of the church from its inception to the day present; his text is supplemented by a short chapter, written by the Vicar, the Rev. Ernest Driver.

To architects, the main interest of Mr. Bumpus' text will lie in its record of the professional labours of Butterfield upon the fabric of St. Matthias; to the cleric, the struggle (successfully accomplished) for the establishment of an ornate ritual will prove of the greatest appeal; to the public at large there will not be any appeal in a book of a purely parochial nature, and written (we believe) merely for private circulation in the parish.

BALDWIN'S LIMITED

London Office - 5 Fenchurch Street, E.C.
London Works - Orchard Place, Blackwall, E.

Tanks & Cisterns

OF ALL DESCRIPTIONS.

Sole Makers of the Improved **HOT WATER TANKS**
fitted with Brain's Patent Manhole & Cover. Solid Corners.

Easily and Quickly
Fixed.

No Leaky Joints.
No India Rubber
Ring Required.

□

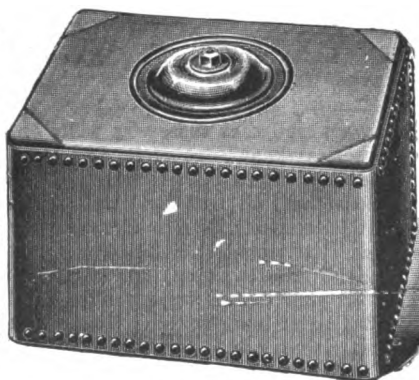
Strong and Durable.

□

Cheapest and Best
on the market.

□

Can be obtained
from all Builders'
Merchants and Iron-
mongers.



**IRON KECS, DRUMS & CANS,
CALVD. CORRUGATED & PLAIN SHEETS,
STEEL-FRAMED ROOFS & BUILDINGS, Etc.**

PORTLAND STONE

From the Quarries and Masonry Works of
F. J. BARNES, Portland, Dorset
(the OLDEST ESTABLISHED Quarry and Masonry Business in Portland).

Established over 40 years.

London Office: 14 NINE ELMS LANE, S.W.
Agencies in BIRMINGHAM, LIVERPOOL, &c.



The principal feature of
the **CHAMPION CHIMNEY POT** is
its magnificent updraft.

For many years the
"Champion" has been speci-
fied by **LEADING ARCHITECTS**
and has sold in large numbers.

Architects speak highly of
its **SMOKE-CURING** and **VENTI-
LATION** qualities, and admit
it to be of excellent design.

Catalogues with views and
particulars on application to
The Patent Chimney Pot Co.
Ltd., 105 Albion St., LEEDS.

HANDSOME CLOTH CASES for binding "THE
ARCHITECT," Price **TWO SHILLINGS** each.

Orr's Zinc White Limited

WIDNES, LANCS.

Telegram: "Orr, Widnes."

Telephone: No. 56.

Manufacturers of

"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.

ZINC SULPHIDE WHITE (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.

"SILOX," a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

Mr. Bumpus writes with enthusiasm and knowledge, but with what we would term a tinge of churchism in his style. But we anticipate that within the limits of the parish of St. Matthias, Stoke Newington, the book will be widely read and greatly appreciated.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BESKSHIRE.

Harwell.—Four workmen's dwellings.

Newbury.—Council Infants' School, Bartholomew Street: rebuilding.

CHESHIRE.

Birkenhead.—St. Mary's Priory: alterations. Mr. E. Kirby, F.R.I.B.A., architect, 5 Cook Street, Liverpool.

Chester.—Proposed cinematograph theatre, Watgate Street, Hoole. Mr. W. Williams, builder, The Croft, Newton.

CORNWALL.

Millbrook.—C.E. Day Schools (£2,500).

Philleigh.—Public Elementary School for about forty places.

DERBYSHIRE.

Derby.—Glass Works, Mansfield Road, for the Derby Crown Glass Company, Ltd.

Dove Holes.—Cement Manufacturing Works, near Bar-moor Clough, for the British Portland Cement Company (£100,000).

Long Eaton.—St. John's Church, Derby Road.

Tideswell.—Council School: alterations. Mr. G. H. Widdows, A.R.I.B.A., architect, County Offices, St. Mary's Gate, Derby.

DEVON.

Exeter.—Heavitree House: bungalows, garage, &c., for the Royal Automobile Club.

Kingsteignton.—Fire Brigade Station, &c., Clifford Street.

Newton Abbot.—Liberal Clubhouse (£2,500). Mr. J. C. Beare, A.R.I.B.A., architect, 42 Devon Square.

Torrington.—Working-class dwellings.

DORSET.

Sandbanks.—Haven Hotel: alterations for Mr. H. F. Gwatkin (£4,000).

DURHAM.

Durham.—Proposed Union Infirmary, Red Hills Lane.

Easington.—Infectious Diseases Hospital.

Hetton (near).—House, Elmore Colliery, for Lambton and Hetton Collieries, Ltd.

Houghton-le-Spring.—House in the Lake grounds, for Mr. R. Wheatley.

Spennymoor.—Municipal buildings.

ESSEX.

Braintree.—Public Baths: slipper baths extension.

Two villas, Granville Road. Mr. A. G. Wicks, builder.

Two pairs of villas, Granville Road, for Mr. H. Smith.

Chelmsford.—County Offices (£46,000).

Ilford.—St. Margaret's Church, Lev Street.

Orsett.—Hospital: fever pavilion (£3,200). Mr. C. M. Shiner, A.R.I.B.A., architect, the Gate House, Grays.

GLOUCESTERSHIRE.

Cheltenham.—Handicraft Centre, Milsom Street: alterations, &c. Messrs. Chatters (F.R.I.B.A.) & Smithson, architects, 17 Regent Street.

Tuffley.—Twenty-four working-class dwellings, Northfield Road (£6,500).

HAMPSHIRE.

Gosport.—Council School, Grove Street: boys' department.

Leesland Council School: handicraft centre.

KENT.

Broadstairs.—Holy Trinity Church. Mr. A. M. Durrant, A.R.I.B.A., architect, 7 Southampton Street, Strand, London.

Council School on the Vale Estate.

Folkestone.—Hotel: rebuilding for Gordon Hotels Company, Ltd.

LANCASHIRE.

Ashton-under-Lyne.—Chambers Hill Workhouse: extensions. Messrs. J. Eaton (F.R.I.B.A.), Sons & Cantrell, architects, Bank Chambers, Stamford Street.

Bolton.—Mossfield Mill, Vernon Street: extension for Messrs. Knowles, Ltd.

Picture palace, Mount Street, for Mr. F. S. Hampson.

North Meols.—St. Stephen-in-the-Banks Church: rebuilding.

Wallasey.—Workmen's dwellings (£13,250).

LEICESTERSHIRE.

Market Harborough.—Mission Room, New Harborough.

MIDDLESSEX.

Chiswick.—Girls' Secondary School for 200 places.

MONMOUTHSHIRE.

Ebbw Vale.—Workmen's Hall: additions. Mr. H. Waters, architect, Market Chambers.

NORTHAMPTONSHIRE.

Kettering.—Engineering Works: rebuilding, for W. Ball, Ltd. Messrs. Cayley & Rochester, A.A.R.I.B.A., architects, St. Anthony's Hill, Desborough.

NORTHUMBERLAND.

Kirkcubright.—Rectory improvements, &c. (£780). Mr. A. B. Plummer, F.R.I.B.A., architect, 13 Grey Street, Newcastle-upon-Tyne.

Newcastle-upon-Tyne.—Public Baths, for Benwell, Heaton and Walker.

Public Elementary School, Walker Road, for 400 places.

NOTTINGHAMSHIRE.

Mansfield Woodhouse.—County School for 500 places.

OXFORDSHIRE.

Banbury.—Baptist Sunday School, Bridge Street: extension (£750).

SOMERSET.

Bath.—Grand Pump Room Hotel: alterations, &c. (£25,000).

Bridgwater.—Council School, Eastover: additions. Mr. F. Parr, Borough architect.

Winham.—Council School. Messrs. Symes & Madge, architects, Somerset House, Chard.

STAFFORDSHIRE.

Bilston.—Isolation Hospital: extension. Mr. V. Turner, Council surveyor.

Stafford.—Coliseum Theatre, Gaolgate Street (for about 1,300 sittings). £15,000 to £20,000. Mr. H. T. Sandy, architect, 22 Greengate Street, Stafford.

Stone.—County farm institute. Mr. W. J. Nevett, County architect, County Buildings.

Walsall.—Church School.

Wolverhampton.—R.C. School, All Saints' Road, for 450 places. Messrs. H. Willcock & Co., contractors, Darlington Street.

SURREY.

Carshalton.—Rubber factory. Mr. C. S. Banks, architect, 16 Oakfield Road, Croydon.

Haslemere.—Depôt buildings, foreman's cottage, &c. Council surveyor (£1,300).

Horsell.—Council Infants' School.

Walton-on-Thames.—Mortuary, Hersham Road, Hersham. Council surveyor.

Woking.—Eight houses, for the Woking, Horsell, and District Co-operative Society.

Goldsworth Council School: addition (£3,000).

SUSSEX.

Cowfold.—Proposed eight workmen's cottages (£1,500).

Howham.—Proposed new isolation hospital.

Worthing.—St. John's Mission Church, Elm Grove: additions. Messrs. Cogswell (A.R.I.B.A.) & Hagger, architects, 5 Highworth.

WARWICKSHIRE.

Birmingham.—Weights and Measures Office, Corporation Street (£3,600).

WORCESTERSHIRE.

Bromyard.—Cemetery Chapel and caretaker's house (£700).

Redditch.—Twelve working-class dwellings.

YORKSHIRE.

Bradford.—Public Baths at Brownrovd, Greengate, and Lister Hills. Mr. W. Williamson, City architect, Town Hall.

Chathurn.—Church Institute. Mr. W. Stirrup, F.R.I.B.A., architect, 14 Richmond Terrace, Blackburn.

Deesbury.—Warehouse, Victoria Mills, Savile Town. Messrs. Kirk, Sons & Ridgway, F.R.I.B.A., architects, Market Place.

Harrogate.—Public Elementary School. Mr. C. H. Chan-non, F.R.I.B.A., Market Street, Malton.

The "WINGET" HAND-POWER MIXER

IS NOT A MAN-KILLER

3 CUBE FEET MIXED
CONCRETE PER BATCH

→ NO ←

PRELIMINARY DRY
MIXING NECESSARY

OUTPUT *of* MIXED CONCRETE
25 TO 30 CUBE YARDS
PER TEN-HOUR DAY

EASILY MOVED FROM JOB TO JOB—
NO POWER REQUIRED. *Simple & Efficient*

**The (U.K.) WINGET CONCRETE
MACHINE COMPANY, LIMITED**
5 STAR BUILDINGS, NEWCASTLE - ON - TYNE

WALES.

Bedwas.—Council Offices, Fire Station, &c. (£3,150).
Criccieth.—Sixteen workmen's houses.
Rhyl.—Infantry and Yeomanry Headquarters, for the Flintshire T.F. Association.
Tenby.—Council School.

SCOTLAND.

Aberdeen.—Ferryhill School: additional building for 650 places, with a gymnasium: also alterations (£11,500).
Crombie.—Explosive Works: electric generating station, &c., for H.M. Admiralty.
Dundee.—Property, Coupar's Alley and Wellgate: alterations for Miss Duff's heirs.
 House, Monifieth Road: addition and alteration, for Mr. G. N. Nairn.
 House, Muirfield Road: alteration for Mr. W. Thain.
 House, Strathmartine Road: addition for Mr. A. Henderson.
 Premises, Dudhope Street and Victoria Road: alteration for Messrs. J. K. Mearns & Co.
 Workshop, Seagate: additions for Messrs. Langlands & M'Ainsh, Ltd.
Musselburgh.—Grammar School for 540 places (£11,000). Mr. W. Constable, architect.
Perth.—Sanatorium.
Wishaw.—Aerated water factory, Stewarton Street: extension (£1,000), for Messrs. A. G. Barr & Co.

IRELAND.

Ballymena.—Artisans' dwellings (£10,000).
Bangor.—Villa. Messrs. J. Fraser & Son, architects, 117 Victoria Street, Belfast.
Belfast.—Central and branch fire stations.
Kingstown.—Twenty-three Council houses, Callaghan's Lane (£4,350).

PATENT SPECIFICATIONS PUBLISHED
DECEMBER 4, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 25,447. Nov. 6, 1912.—Sanitare Desinfector-Fabrik, Patzschke & Co., G.m.b.H., 16 Wilhelmstr., Berlin, S.W. 48, and J. P. Govers, 28 Halleschesstr., Berlin, S.W. 11. Body-spraying devices for water closets.
 25,542. Nov. 7, 1912.—Alfred Bates, 155 Spring Hall Lane, Halifax. Floats for ball and float valves.
 25,746. Nov. 9, 1912.—F. J. Bostel, 73 Ebury Street, Pimlico, S.W. Opening and closing of manhole doors for drainage and sewerage, applicable also to other pavement doors.
 26,199. Nov. 14, 1912. Variable Speed Gear, Ltd., and John Robson, Broadway Court, Westminster, S.W. Passenger and other lifts; and
 26,279. Nov. 15, 1912.—Cranes and other hoisting apparatus.
 28,259. Dec. 7, 1912.—E. B. M. Collier, 19 Great Russell Street, W.C. Air-sterilising and heating apparatus.
 29,730. Dec. 24, 1912.—Martin Patent Davit Co., Ltd., and A. J. Lewkowicz, 9 Union Court, Liverpool. Hoisting and lowering apparatus.
 29,778. Dec. 27, 1912.—C. G. Major and Smith, Major & Stevens, Ltd., Abbey Works, Weedon Road, Northampton. Electric locks for lift and hoist gates.
 55. Jan. 1, 1913.—John Shanks, Tubal Works, Barrhead, Renfrewshire. Combined valve and siphon.
 231. Jan. 3, 1913.—John Halterbeck, 251 Cypress Avenue, New York, U.S.A. Machines for working wood or similar materials.
 268. Jan. 4, 1913.—Frederick Tyers, 383 Mansfield Road, Notts. Pipe cutters.
 317. Jan. 6, 1913.—James Hinks & Son, Ltd., and L. S. Hinks, 91 Great Hampton Street, Birmingham. Gas-light fittings such as pendants, suspension lamps and lanterns, brackets, and such like.
 919. Jan. 13, 1913.—Herbert White, 1 George Street, Belper, Derbyshire. Holdfast for roofing slates and the like for use in repairing roofs.
 1,375. Jan. 17, 1913.—John Lamin, Sydney Villas, Plains Road, Mapperley, Nottingham, and Geo. Stockdale, Bestwood Park, Arnold, Nottingham. Heating stoves.
 4,900. Feb. 26, 1913.—Joseph Parkes, Woodsetton Works, near Dudley. Curbs, fenders, and the like. (Constructing the curbs or fenders of metal with insets of tiles.)

534. Jan. 8, 1913.—J. P. Smith, 66 Holyhead Road, Wednesbury, Staffs. Electric ceiling roses.

4,964. Feb. 27, 1913.—J. F. Jones and Jones & Campbell, Ltd., Torwood Foundry, Larbert, Stirling. Domestic fire grates.

6,044. March 11, 1913.—F. F. Burn, Bellevue House, Station Road, Ystradgynlais, Brecon; A. C. Burn, 27 Grove Lane, Kingston-on-Thames; and G. C. Carter, 3 Arundel Street, Strand. Manufacture of bricks, blocks, slabs, and other articles and apparatus therefor.

11,026. May 9, 1913. Dated under International Convention May 13, 1912.—Wilfred Lumley, Conneaut, Ashtabula, Ohio, U.S.A. Chandeliers and like fixtures.

13,745. June 13, 1913. Dated under International Convention April 3, 1913.—Edward Arnold, Ph.D., 41 Lotharingerstr., Berlin. Rinks or the like sliding surfaces or floors.

13,925. June 16, 1913. Dated under International Convention June 26, 1912.—Franz Bauer & Sohne, A.G., Nordstr. 25, Zurich. Armour plating for safes, strong-rooms, and the like.

15,180. July 1, 1913.—J. B. Malaby, 149 Berkley Street, Philadelphia. Wall plugs or fixing sockets.

15,233. July 2, 1913.—Erebus Manufacturing Co., Ltd., and Enoch Raybone, all of Holland Street, Willenhall, Staffs. Bolts of latches and locks.

15,390. July 3, 1913.—A. E. Graham, Braemar House, Verner Road, Hart, Durham. Chimney and ventilating shaft tops.

16,610. July 19, 1912.—John Chipchase, 17 West Parade, Newcastle-on-Tyne. Pipe, tube, or bar cutter.

17,062. July 25, 1913.—John Maunders, Derbyshire Lane, Stretford, Lanes., and T. A. Stewart, Stretford Road, Hulme, Manchester. Cooking ranges.

19,299. Aug. 26, 1912.—F. A. Waring, Carlton, Sandfield Park, West Derby, and C. E. Hughes, 32 Derwent Road, Lancaster. Louvre or like frame-work construction.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Signature of Buildings.

SIR,—Referring to your remarks on the above in the issue of the 5th inst., as this subject is a delicate one to the architect, I have ventured on "holy ground" to express what to the lay mind seems very important.

I have often been in the ignominious position of being unable to inform a visiting architect and others (who appreciated the beauty of the architecture) of the name of the author of a building, without approaching the tenant, who in many cases knows not and cares less who the architect was, and so much time is lost in finding out through the proper channels—i.e., the records of the building. In Leeds, for instance, I suppose thousands could be asked without getting an answer who the architect was of the Town Hall, &c. In France one finds a stone with the inscription of architect, and in some cases builder also. In England how very instructive to find that some more or less important person, or maybe persons, have "laid this stone" or "these stones" (as one may find on some chapels, for instance), and then tendered a guinea or so to advertise their names to posterity, whereas a piece of statuary, which does not serve so useful a purpose, is discredited if it has not the name of the sculptor graven upon it. Surely a "corner stone" should read thus:—"This stone was laid by — of — on —," bearing the name of the master craftsman—i.e. architect—and the place where he resided and date, so that it can be proven that the title-deeds are correct, and also hand down to his successors how high he attempted to ascend the ladder of fame, and also as an act of appreciation for what he has contributed (oftentimes with little financial reward) to the moulding of the nation.

The above is surely a subject for the R.I.B.A. to take up, but I do not see how an architect can be compelled to sign his buildings, yet I have proved that public opinion seems to desire it.—Yours sincerely,

A. WILLETTTS.

71 East Park Parade, Leeds: December 9, 1913.

**MOTOR TRACTION
MEANS—MORE—TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sap.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonald, Sewest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*

ABERTHAW AND RHOOSE PORTLAND CEMENT & LIME CO., LTD.

MANUFACTURERS OF

BEST BRITISH PORTLAND CEMENT

BY THE LATEST AND MOST
MODERN METHODS AND MACHINERY.

Guaranteed uniform in quality and to pass British Standard specification, or any required specification.
Special facilities for shipment at the Port of Barry Docks.
Excellent situation for home consumption.
Consumers are invited to apply for samples, analyses, and quotations to—

**54 ST. MARY STREET,
CARDIFF.**

Telegrams: "SILICA, CARDIFF."
Telephone: 1367 CARDIFF.

— THE — Universal Concrete & Construction Co. Ltd.

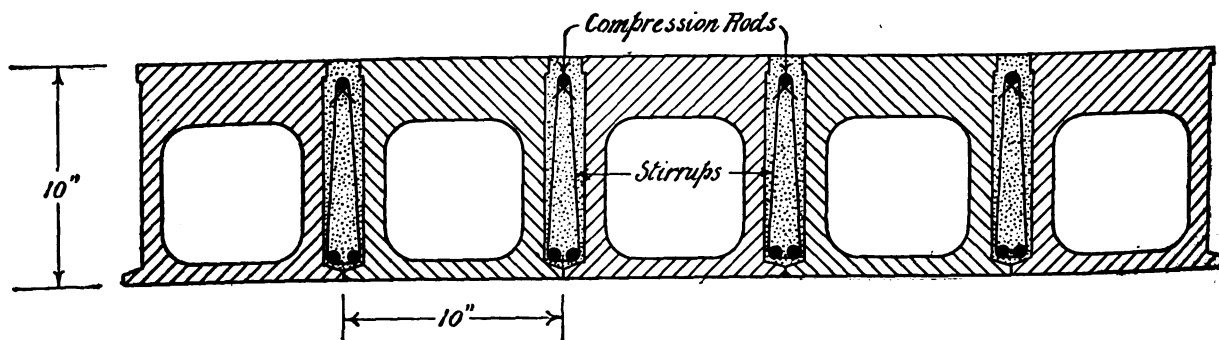
20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 Victoria.

**HIGHEST
EFFICIENCY**

**FIFTEEN YEARS' EXPERIENCE IN FLOOR CONSTRUCTION
WITHOUT MISHAP OF ANY KIND.**

**MINIMUM
COST.**



REINFORCED HOLLOW BLOCK FLOORS

SPECIAL FEATURES: This type of Floor is specially adaptable for Long Spans without Beams projecting below the Ceilings, such as are required in Hospital Wards. Minimum depth and dead weight with the maximum strength are obtained. Flues and Vents can be readily formed through the floor.

Manufacturers of Fireproof Partitions, Granolithic Stairs, Landings, Paving, Sills, &c.

The Architect.

CONTENTS.

	PAGE
Students' Drawings at the Royal Academy	565
Notes and Comments	566
London County Council	567
Leeds and Yorkshire Architectural Society	568
Boaswell's House in Great Queen Street	568
Art in London	568
Competition News	568
Illustrations :—	
St. Paul's Girls' School, Hammersmith, W.	568
Royal Institute of British Architects	570
The Society of Architects	572
Royal Academy Schools	574
Sheffield Society of Architects	576
Royal Institute of the Architects of Ireland	576
English Neo-Classic Architecture	577
Temporary Buildings in Relation to By-Laws	578
Daylight Illumination and School Planning	579
House in Grunewald Suburb, Berlin (illustration)	580
Country House at Dahlem, near Berlin (illustration)	581
Building Progress in the Provinces	583
British Patent Specifications	585
Correspondence	587

STUDENTS' DRAWINGS AT THE ROYAL ACADEMY.

THIS being "gold-medal year" at the Royal Academy, there is a more extensive output of students' work than in the off-years, and particularly in the competition for the Gold Medal and Travelling Studentship (£200) in Architecture, which, as we announced last week, has been won by Mr. David John Chisholm. The subject set was "A Town Hall for an Important City," and although municipal offices are included, it is remarkable how very far from sufficient or practical is the accommodation or arrangement of these offices in any of the designs. No British "city" with any claim to importance could house more than a small proportion of its staff in the space provided by the most liberal-minded competitor. The site being open on all four sides divested the problem of the difficulties that so often occur in actual practice, and the competitors had ample space for planning on grand lines. Sumptuous entrance halls and grandiose staircases seem to have been the objective of most of the students who took part in the competition.

The winning design groups the whole building around an immense internal quadrangular court with arched entrance for carriages. On one side of the quad are located on the first floor what may be termed the civic reception suite, including a reception hall, banqueting hall, council chamber, and Mayor's rooms, with committee rooms on the flanking sides. The opposite side of the quad is occupied by the town hall, a reasonably proportioned room 120 feet by 60 feet, with its accessories. Grand entrance halls and magnificent staircases are provided, but as in many other of the designs are regarded too much as distinct entities and opportunities for striking interior effect rather than as approaches to dominant features of the plan. One might imagine that a Royal Academy student of architecture would expect the visitor to a building erected from his design to regard the entrance halls and staircases as an end rather than the means, and that having viewed and admired them he would straightway depart fully satisfied with his feast of art and beauty. The students would seem to have assimilated too literally the doctrine of the importance in real architecture of interior design, and to have leaped to the conclusion that such design means chiefly magnificent halls and staircases. Externally the chief feature of Mr. Chisholm's design is a lofty

tower or campanile, forcibly reminiscent of a well-known example in the Black Country. The detail, of Italian Renaissance character, is respectable rather than enthusiastic or strikingly original. The draughtsmanship is clean and good and the shading delicate and refined. Though undoubtedly the best of the ten exhibited the winning design cannot be said to be marked by any evidence of genius or originality. But even the Royal Academy Schools cannot turn out a Whitelaw every two years. The bulk of us are mediocrities, and if we can attain even a respectable standard of mediocrity we may be well content.

Taking the other designs in numerical order, No. 189 is one of those in which the entrance halls and grand staircases, two of each, seem to be main features of the plan, which is square in outline with two internal courts. Of the exterior a central dome on a huge square is the dominant and rather overpowering note. The detail well drawn is the regulation Greco-Italian type. No. 190 shows the need of further instruction in the School, as neither plan, design nor draughtsmanship is good.

No. 191 approaches most nearly in merit to the winner. The design is well composed, with the public hall in the centre between two courts, around which are groups of various rooms, whilst two projecting wings form an open quadrangle on the entrance front. A large dome over the principal entrance, though neither elegant in outline nor well-proportioned, forms a good centre of the composition. As regards practical planning of the municipal offices this design is very far from commendable. The detail is respectable and even scholarly. No. 192, evidently inspired by a successful American example, adopts a circular plan with a circular town hall in the centre, from which straight limbs, crossing open courts, lead to the outer ring. A dome over the centre, of French feeling externally, gives too great height to the town hall, both æsthetically and acoustically. The composition of the whole design is of very fair order, and the author is an accomplished draughtsman of detail.

No. 193 has rather better provision for offices than many others, but is discredited by the absurdly long and narrow proportion of the town hall. The drawings are really rough studies on tracing paper rather than representatives of a well-thought-out design. The elevations are well composed though avoiding any assistance from dome or tower. No. 194 indulges in two grand staircases and entrance halls leading to one grand reception hall. Here also the town hall is too long in proportion. The four internal courts enclosed within a square are too small. A well set-up and shapely dome makes a good central feature of the composition. No. 195 also provides a double set of vestibules, entrance halls, and grand staircases to the central assembly hall, the result of which is a plan with many serious practical defects. The exterior attempts grandeur with a tall tower and abnormally high roof. No. 197 has a confused and overcrowded plan over which an ungraceful central dome spreads its overshadowing bulk. No. 198 has caught the idea of projecting wings as adopted in No. 191, but fails to produce a satisfactory composition chiefly by reason of the miserably proportioned small dome. In fine, there are very few designs in the competition worthy of a gold medal and £200, and the highest prize the Royal Academy has to bestow on its architectural students appears to be a very easy prey to any really able young architect who passes through the School.

There is no evidence in the designs executed in the School of any very great genius or even talent. The prize of £20 and silver medal is awarded to Mr. Walter Llewellyn Clark for a design of a Royal Naval College, a long-drawn-out building with a squat dome over the centre. The prize of £15 and silver medal taken by Mr. James Mollison Wilson with his drawings for an

entrance to the forecourt of a nobleman's town house is gained by rational design and good proportion; the prize of £10 and bronze medal rewards Mr. Harold Clayforth Mason for a design of a market hall, of which the chief point is a well-coloured detail. No. 206, a design for an opera house, is one of the best of the non-successful designs.

The prize for a set of measured drawings is fairly won by Mr. H. C. Mason with a clean, careful, well-shaded set of the west front of St. Mary-le-Strand Church.

An exhibition of drawings by the late J. M. Whitelaw not only marks the ability of the artist who was so tragically cut off in the promise of a great career, but emphasises the poverty of imaginative conception that seems to be at present the characteristic of students of the Royal Academy School. Vainly struggling after the grand manner without the least sign of divine afflatus, much good draughtsmanship is expended upon the production of designs that are neither practical nor beautiful.

NOTES AND COMMENTS.

A SUGGESTION made by a correspondent in the *Times*, that architects engaged in the competition for the new St. Paul's Bridge should consider the possibility of introducing a cloistered or arcaded way to the foot-pavement on either side of the roadway, with windows overlooking the river, for which on a minor scale there is the glorious precedent of the Rialto Bridge in Venice, and so creating a strikingly artistic effect, and at the same time providing the pedestrian with protection from the weather, to which he must otherwise be exposed, will no doubt be appreciated by the competitors; but, as in all open competitions, there will be before their eyes the everlasting bogey—what will the assessor say? It is one of the unfortunate concomitants of competitions that the designers dare not be too unconventional. There is still time in this case for the inquiry to be made as to whether such a treatment would be allowable, and we hope some one will put the question.

We must, we suppose, take it for granted that the duty of the Commissioners of Inland Revenue is to draw as big a catch from property-owners as possible, and to make the meshes of their net as fine as the law will allow, so that not even the smallest wee fish may escape in the sea of uncertainty created by the Finance Act, 1910; but their efforts to increase the collection of "undeveloped land duty" would be ludicrous if they were not so serious. The failure of their contention in the case of the Southend-on-Sea Estates Company is gratifying evidence that there is some limit to the smallness of mesh in the Commissioners' net. If the definition of "undeveloped land" be extended as far as seems necessary to make the tax upon it pay the cost of collection, all land not occupied by streets or buildings would seem to be "undeveloped." But the Court of Appeal seems now to have decided a more equitable principle, and consequent thereon, as Mr. Edmund Royds, M.P., says in his letter to the *Times*, "if undeveloped land duty is in future to be payable at all, should not the principle laid down by the Court of Appeal have general application—viz., that the duty should only be payable in respect of land really required for building purposes and deliberately withheld from development? The imposition of the tax at the time of its inception was sought to be justified on the ground that much land required for building purposes was being deliberately 'held up,' and that the placing of a tax on it would either bring it into the market or cause the owner to develop it himself. Experience has shown that the tax in fact falls on land which is neither 'held up' nor required for building purposes, and is for the time being put to its best available use—viz., agriculture, accommodation land, allotment and garden ground, and that there is in point of fact little or no land in the country really

required for building purposes which is being deliberately withheld from development.

"While the principle on which the judgment of the Court of Appeal was based is of the widest importance, yet the decision only affects land actually in lease prior to April 30, 1909, and only gives relief from undeveloped land duty during the continuance of the lease or until such earlier time as the land shall be *bona fide* required for building purposes, and possession can be resumed by the owner for those purposes."

He expresses the hope, in the light of actual experience of the effect of the tax, that legislation will be introduced at an early date making the decision of the Court of Appeal applicable to all land and restricting the imposition of the undeveloped land duty tax to cases where land ripe for building is deliberately "held up" against the interests of the public. This would have the effect of bringing the operation of the tax into harmony with the representations which were urged by those who originated and supported this novel scheme of taxation.

The fact is that "undeveloped land" in the sense that Mr. Lloyd George gave it to be understood he intended—that is, land needed for building, but deliberately "held up" by owners—does not exist in reality, and so a forced interpretation of the term must be found or there would be no undeveloped land tax.

So, too, with the Chancellor's picture of "the grip" and "the claws of landlordism" in towns. It is purely imaginary except when the State is the landlord, then the terms offered to a sitting tenant who wants a renewal of his lease are more exacting than any private landlord, great or small, who dares not overstand his market, would think of proposing.

The fact of a County Court action for five shillings being carried on appeal through the Divisional Court, the Court of Appeal, and finally the House of Lords, shows that an important principle was involved in the claim of the Metropolitan Water Board for an increased rate for water alleged to have been used for non-domestic purposes in a public-house. The County Court Judge gave judgment for the Water Board for the amount claimed, but this decision was reversed by the Divisional Court (Mr. Justice Channell and Mr. Justice Bray), and the decision of the Divisional Court was affirmed by the Court of Appeal (Lords Justices Vaughan Williams, Buckley, and Hamilton).

The Judges in the House of Lords—Lord Halsbury, Lord Kinnear, Lord Dunedin, and Lord Atkinson—upheld the decision of the Court of Appeal, and the explanation by Lord Dunedin in his judgment of what is and what is not "domestic" use of water is of high importance. His lordship said: "What is the criterion which enables us to fix whether the water is supplied for a trade, manufacture, or business? It does not settle it to point out that a trade, &c., is carried on in the premises where the water is supplied. That is absolutely clear from the terms of section 9, which contemplates a supply of water for domestic purposes being furnished to a building where not only a trade is carried on, but where the occupation is solely for the purpose of the trade—i.e., not residential at all—and Colley's case in this House is a direct authority. Nor will it do to say that the persons who use it on the premises only go there for the purposes of a trade being carried on. Pidgeon's case (the boarding-house case) is an authority against that. It seems to me that there are just two alternative views left. Either the criterion is to see whether the purpose in connection with the trade is domestic or non-domestic in itself, the criterion adopted by the Courts below, and very clearly expressed in the judgments of Mr. Justice Bray and Lord Justice Buckley, or to say, as the appellants contend, that every use of water, however domestic in its nature, that appears as a step, however insignificant, in a trade operation, is use of water for a trade, and therefore non-domestic.

"The great objection to the latter view is that it goes so far and leads to such astounding results as to make

it flagrantly in conflict with what I venture to call the commonsense view of the Act. The appellants themselves seem to have felt this, inasmuch as they admit that they are not in use to exact from public-houses anything more than a domestic rate. Yet, unless all liquors are consumed neat, and the glasses and mugs never washed, it is clear that the water used in public-houses is, according to their method of definition, a trade use. Nor does the matter stop here. Not only does all water in hotels and boarding-houses for the cooking of provisions (a severe narrowing down of Pidgeon's case) follow the same fate, but no retail shopkeeper could use a damp sponge to clean dusty goods without becoming liable to a trade rate for the water so used. On the other hand, the test of the quality of the use in itself—so tersely put by Lord Justice Buckley, 'The test is not whether the water is consumed or used in the course of the trade, but whether the user of the water is in its nature domestic'—is not only easy of application but is automatic in checking abuse. For purposes truly domestic cannot be amplified, and when the consumption on such heads is large it is invariably attended by an increase in the rating value of the premises, which brings with it an increased water rate."

In an account given by a correspondent of the *Morning Post* of Commendatore Boni's recent excavations on the Palatine is reference to a richly ornamented house that he has discovered at a considerable depth below the surface, which strikes us as of peculiar interest. This building, by an emendation of the text of Suetonius's treatise on the Grammarians (ch. 17), where mention is made of "Catulinae domus, quae pars Palatii tunc erat," he believes to have been the house not of Catulus but of the more notorious Catiline. Whoever the owner may have been, he was a man of excellent taste, for his tessellated pavement (entirely intact) is of excellent workmanship. Two fine griffins of stucco, one quite perfect and another partly preserved, adorn one of the walls, while another mural decoration consists of a geometrical design in vivid red and other colours of wonderful freshness.

This month's issue of *The Connoisseur* is of more than usual architectural interest by reason of the illustrations in Part II. of "The Noble Homes of England," which include Compton Wynyates, Grimsthorpe Castle, Harewood House, Montacute House, Highclere Castle, Bayham (Kent), Barleythorpe (Oakham), Strawberry Hill, Berkeley Castle, Lambton Castle (Durham), Holdenby (Northants), Cotehele, Heythrop, Badminton, and Drakelow Hall. An article on Mr. B. B. Colson's collection contains illustrations of some good examples of furniture as well as pottery. A review of Mr. Beresford Ryley's book on "Old Paste" takes the opportunity of discounting the real value of some of the marvellous jewels of the Ancients.

LONDON COUNTY COUNCIL. THE GROUND PLAN OF LONDON.

A QUESTION affecting the interests of owners who have supplied information to the L.C.C. for the preparation of the Ground Plan of London was raised this week by the Deputy-Chairman of the Council (Mr. W. C. Johnson), who asked the Chairman of the Local Government Committee: (1) Whether much of the information so supplied was not given on the understanding that it was strictly confidential and for the Council's use only, and whether for that reason information had been refused to various Borough Councils and other authorities; (2) whether it was right for a member of the Council to obtain information for the Plan, in order to hand it over to others; and (3) whether he would reconsider his attitude of last week, when, in answer to a question, he did supply such information, which was immediately handed over to an ex-member of the Council?

Mr. E. L. Meinertzhagen (Chairman of the Committee) admitted the accuracy of the statement that information for

the purposes of the Ground Plan had in some cases been given to the Council confidentially, and that there had been instances of refusal to accede to applications for particulars relating to individual ownerships. Every such application was dealt with on its merits, regard being had to the nature of the information sought and the clearly expressed purpose for which it was required.

Replying to the second question, Mr. Meinertzhagen said he could not undertake to inquire into the motives of members putting questions.

In reply to the third question, his answer last week as to the number of landowners in St. Pancras was in statistical terms, and no breach of confidence appeared to have been committed. The only names he mentioned were those of public authorities, such as the Crown, the Council, the Ecclesiastical Commissioners, and railway companies.

He understood that when a question had been answered in the Council the information immediately became public, and was at the disposal of the Press and any persons interested.

Replying to a supplemental question as to the use of such information for political controversy, Mr. Meinertzhagen said that any member would be perfectly right in asking for information for any purpose he chose.

LONDON UNIVERSITY SITE.

The recommendation of the Education Committee that Somerset House should be utilised as the new central buildings for the London University was discussed at great length. In introducing the report of his committee, Mr. John Gilbert said a great many qualities would be required for the new University site, and Somerset House possessed those qualities in a greater degree than any other site which had been mentioned. He believed it would be impossible to get the various interests concerned so united on any other site.

Mr. Joyce Thomas moved an amendment to the effect that, since it was essential that ample provision should be made for the future development of the teaching and recreative sides of the University, the recommendation of the committee should not be approved.

Mr. E. G. Easton seconded.

Lord Chelmsford supported the recommendation of the committee, declaring that Somerset House, regarded from an architectural standpoint, was probably one of the best buildings in London.

The amendment was defeated.

Another amendment seeking to secure that the Government should be responsible, in respect of site and buildings, for the full extension and development of the University, was accepted without discussion.

Viscount Peel (Chairman of the Improvements Committee) moved a further amendment that a site on the south bank of the Thames be substituted for the Somerset House site.

Mr. Andrew Taylor seconded, on the ground that Somerset House was incapable of adaptation to the purposes of a University. At present it was admitted to be one of the most magnificent and successful public buildings in London, but its utilisation for University purposes would necessitate the absolute gutting of its internal structure and radical alteration of its architectural features.

Mr. Cyril Jackson saw no reason for supposing that the architectural grandeur of Somerset House would be spoiled or interfered with. Certain alterations would, of course, be necessary, but the façade of the building could remain unchanged.

The amendment was defeated by 28 votes to 26, and the committee's recommendation as previously amended was adopted.

The second recommendation of the committee, that the Council was willing to join with the Senate of the University in a deputation to the Government to urge the advantages of Somerset House was amended by the addition of the following words: "And if the Government cannot agree to the centre for the University being established at Somerset House, the Education Committee be instructed to consider and report on the proposal to establish it on a site on the south bank of the river, where it would form an important feature in the beautifying of London."

MR. J. S. PICKERING, borough engineer of Cheltenham, has been elected president of the Institution of Municipal and County Engineers. Mr. Pickering began his professional career at West Bromwich, and was for some years surveyor of Nuneaton. The annual meeting of the Institution will be held at Cheltenham in July.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A GENERAL meeting of the above was held at the Leeds Institute on Thursday, December 11. Mr. G. Fredk. Bowman occupied the chair.

A paper illustrated by lantern was given by Mr. T. E. Eccles, F.R.I.B.A., of Liverpool, the subject being "A Holiday in the Val d'Aostoa (Northern Italy)."

The route described extended from Martigny by way of Cresiere and St. Bernard's Pass over the Alps and down the Val d'Aostoa by way of Ivrea, Biella, Orofà, Vezelay, Novara, and finishing at Dijon.

The slides depicted many excellent compositions from a pictorial point of view, and included examples of architectural work of a high standard.

The meeting was well attended, and concluded with a hearty vote of thanks to the lecturer by Mr. G. W. Smithson, A.R.I.B.A., seconded by Mr. H. S. Chorley, F.R.I.B.A., and carried amidst generous applause.

ART IN LONDON.

MR. F. E. JAMES, R.W.S., IN WATER-COLOURS. THE E. J. van Wisselingh Gallery in Grafton Street (Bond Street) is, at this time of writing, the home, or at least the hearth, of a spirited collection of flower studies, with a sprinkling of interiors and land and seascape sketches included. The interiors, "Pulpit, Sarzana Cathedral," and "Renaissance Altar, Aquila," are too impressionistic to please us, and are most evidently a painter's and not an architect's studies. "In the Library, Heligan," supplies us with a good colour scheme, where nothing is forced and where all is bright, cheerful, and harmonious. "Tilbury" is excellent for its sky, river, and distance, and "Hartland Quay" forms a bold study of a rock-girt bay. But Mr. James' strength is in his flower-painting, where he evinces his masterly analysis of Nature, giving form without undue emphasis, and colour without undue insistence.

We say "colour," but it is not always so, for the artist can manage groups or clusters of white in the same masterly spirit, as, for instance, in No. 18, "A White Study." In some instances the group "sticks" to the background, such as No. 22 ("White Azaleas"), No. 10 ("An Arrangement"), and "Lilies and Brocade." But anything like adverse criticism must take a second place in respect to this exhibition, where we have such work as "A Pattern Carnation" (24), "Carnations" (36), and colour notes as in Nos. 39 and 44. Two herbaceous beds (Nos. 8 and 12) are very bright and attractive, and "Amaryllis" (64) is a bold study of flaming red flowers.

Speaking generally, all is good; it is but a case of which are the better, the very few exceptions scarce proving any leaven in the mass of good work.

BOSWELL'S HOUSE IN GREAT QUEEN STREET.

THE Committee of the Society for the Protection of Ancient Buildings have sent the following letter to Sir Edward Letchworth, Secretary to the Grand Lodge of Freemasons:—

"Sir,—My committee has directed me to write to you on the subject of the beautiful houses in Great Queen Street, Nos. 55 and 56. Your statement to me that it had been decided to pull them down in order to enlarge the Freemasons' Hall led my committee to believe that you cannot realise the important place taken by the street front of these houses in the history of London architecture, quite apart from their connection with various famous people. My committee, therefore, would invite your attention to this aspect of the case, and would ask if it is not possible for this decision to be reconsidered? My committee hopes that it will be possible to save the front and the main roof, with the dormers, unaltered, and to do the necessary repairs to these parts of the building. I am to say that my committee is prepared, if desired, to give professional services in supervising the carrying out of works of repair, and also would endeavour to raise by public subscription the necessary funds for so doing.—I remain, sir, yours faithfully,

"A. R. Powys, Secretary."

COMPETITION NEWS.

DONCASTER.—A United Methodist Church and school are to be erected on a site in Morley Road from the plans of Messrs. G. Baines & Son, 5 Clement's Inn, London, W.C., which were selected in competition from eleven sets of designs.

GOLDTHORPE.—The Urban District Council have purchased nine acres of land near Highgate, and plans for a housing scheme are being invited, the following conditions to be observed: Each house to be self-contained, with separate yard and w.c.; all houses to have private bedrooms, also bath with hot and cold water, and hot and cold water on sink.

LONDON.—The Metropolitan Water Board, in connection with their scheme for new central offices which it has been decided to build on the Board's land in Rosebery Avenue, have authorised the General Purposes Committee to select six architects to be asked to prepare competitive plans for the building "on strictly economical lines," and to appoint a professional assessor. The architects will be instructed that the buildings are to be erected at a cost not exceeding £80,000, and to arrange, if reasonably possible and practicable, to incorporate or rebuild the Oak Room and the room adjoining in the proposed building.

MANCHESTER.—At a meeting of the stockholders of the Manchester Royal Exchange on Monday last it was stated that up to the present forty-nine architects had engaged in the competition for designs for new buildings and alterations on the existing buildings. The competition closes on January 2. It is expected that Mr. J. S. Gibson, F.R.I.B.A., will have made his award as assessor by the middle of the month, that the rebuilding will commence on September 1, and be completed by May 1916.

ILLUSTRATIONS.**ST. PAUL'S GIRLS' SCHOOL: NEW MUSIC SCHOOL.**

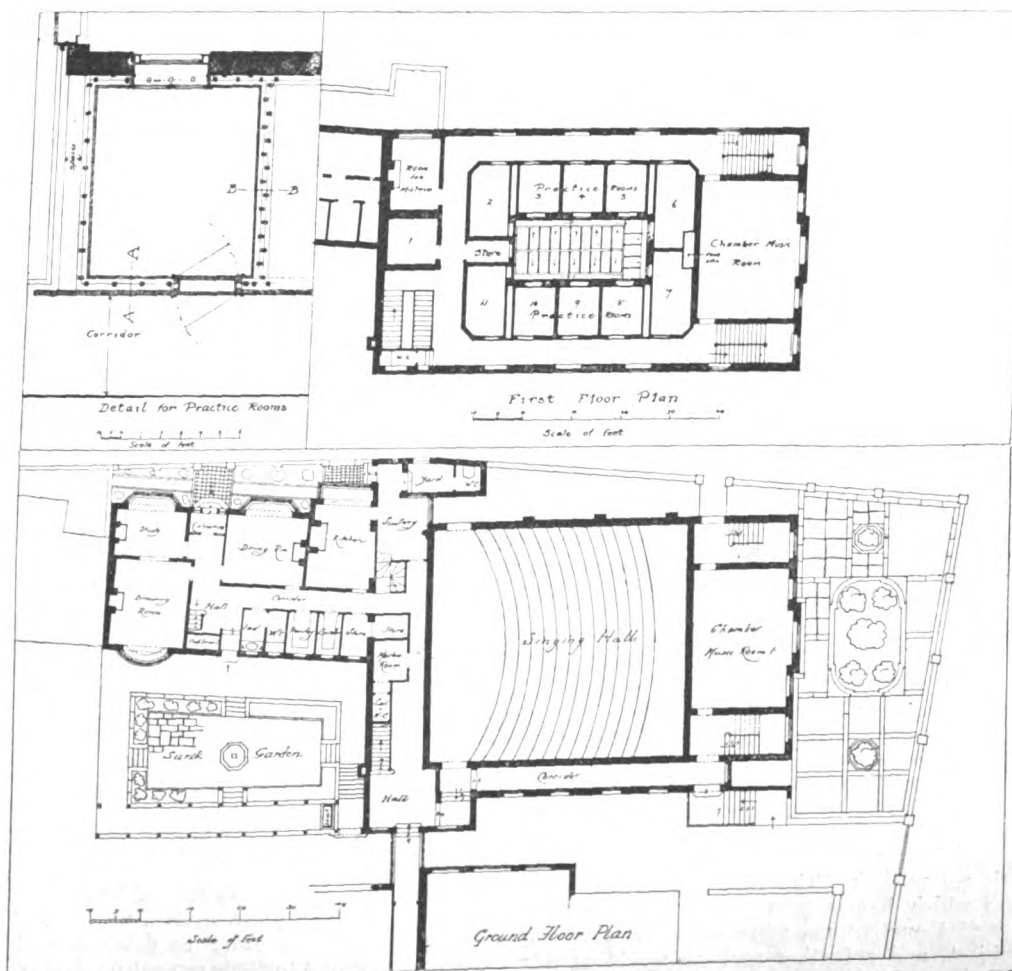
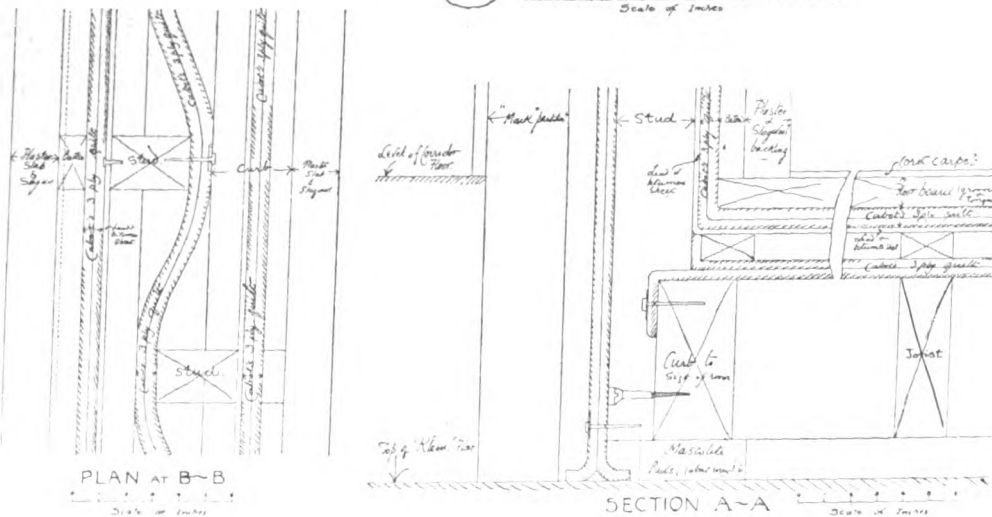
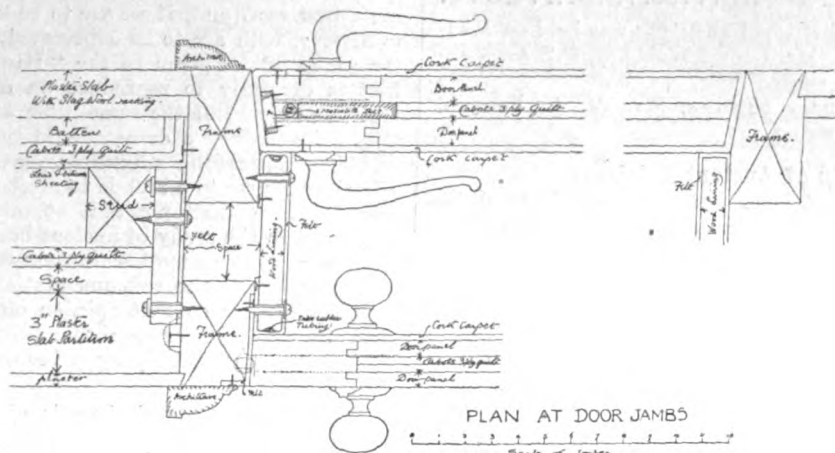
THIS addition to the buildings of the St. Paul's Girls' School, Brook Green, Hammersmith, W., has recently been completed from the designs of Mr. Gerald C. Horsley, F.R.I.B.A., the architect of the school, and Mr. Dendy Watney, the surveyor to the Governors.

The building consists of a large hall for singing, two large rooms for chamber music, and nine or ten practice rooms on the top floor for piano and violin playing. The structure is of red brick and Portland stone, and the roof is covered with Westmoreland green slates. It is connected with the main school building by a bridge; there are three stone staircases, and the fireproof floors are on the "Kleine" system.

Adjoining the school, a house for the High Mistress has also been built, and this, with the garden in the rear, is illustrated in these pages.

It may perhaps be of interest to give some further information concerning the construction of the practice rooms, as these have proved quite satisfactory in not transmitting any sound whatsoever. It was especially desired that the building should be sound-proof in this respect, and the work has been so carried out that it is impossible to hear any sound either through the floors or the partitions. Before this result could be arrived at many experiments had to be made, and it was finally resolved to construct the rooms according to the detail drawings published herewith. From these drawings it will be seen that each room is practically an insulated box. This has been achieved principally by a careful use of Cabot's three-ply Quilt—a material which is made in America, and much used there in buildings to deaden sound. Callender's lead and bitumen sheeting, cork carpet, and slag wool were, in addition, employed to attain the same end. Great care was taken in the construction, even the nails securing the work being in some cases insulated with rubber. As will be seen, there are double doors and windows throughout.

The rooms are well ventilated by means of fresh-air inlets, with outlets in every room, which are operated by "Blackman" electric fans situated in a fan chamber in the roof. The ducts from each room needed to be carefully arranged to prevent the transmission of sound, and this was largely achieved by the use of inlet and outlet ventilators, constructed much like the "silencer" of a motor car, the bafflers being made in felt and perforated lead. The ventilating shafts were made in "Mascolite" felt. All the timber in the work was carefully treated before use to prevent deterioration, and the many details of the work were well carried out by the contractors, Messrs. Holloway Bros. (London), Ltd., and with the able assistance of the clerk of the works, Mr. James Tanner. The heating and sanitary work in the building was executed by Messrs. Dent & Hellyer, of Red Lion Square, W.C.; the electrical work by Messrs. H. J. Cash & Co., Ltd., Caxton House, Westminster, and the ornamental carving on the front elevation was by Messrs. W. Aumonier & Son, of 84 Charlotte Street, W.C.



NEW MUSIC SCHOOL, ST. PAUL'S GIRLS' SCHOOL, HAMMERSMITH.—MESSRS. GERALD C. HORSLEY, F.R.I.B.A. and DENDY WATNEY, Architects.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A GENERAL meeting of the Royal Institute was held on Monday last, the 15th inst. Mr. George Hubbard, F.S.A., Vice-President, occupied the chair.

After some preliminary business, Mr. W. A. Forsyth, F.R.I.B.A., read a paper on

The Repair of Ancient Buildings.

The repair of ancient buildings is, he said, one of the most important and difficult of the many duties which architects are called upon to undertake. The subject has claimed the continual attention of this Royal Institute from the early days of its incorporation. Recent legislation suggests that further consideration should be given to what has become a national question and yet remains an unsettled problem in many of its broad principles.

New legislation in this country is invariably the development of old laws. The recently passed Ancient Monuments Consolidation and Amendment Act is such a measure, and although hastened by the scares of Transatlantic exports from Britain, is a cautious advance into the domain of private ownership in national monuments. The Act permits the purchase or acceptance by the Government of an historic monument, and provides for its upkeep. When a work of national importance is in a state of neglect, and decay is threatened, a preservation order can be applied for, and, under certain conditions, put in force. The Commissioners of Works then step in and effect necessary reparation.

Advisory Boards are to be appointed for England, for Scotland, and for Wales. Upon the first the Royal Institute of British Architects is to have representation under the terms of the Act, and our President has been nominated to represent our views.

It is hoped that the necessity will not arise for many years to come when cathedrals and churches in regular use shall come within the range of some authoritative preservation other than ecclesiastical.

The Town Planning Act of our own time recognises ancient monuments; the realisation of a municipal lay-out may be affected by the position of an historic building. Here is a matter of congratulation to architects; but, having rescued a work of the past, it is important that any repairs be of such a nature as to secure the spirit of the early builders from destruction.

Continental countries have long passed more comprehensive and stringent laws governing the scheduling and preservation of ancient monuments than we possess; yet in many of those countries it will be generally agreed that the methods of repair or preservation have been proportionately drastic in their efforts to preserve the letter, rather than the spirit, of old work. Many of the churches and châteaux of France have lost interest through that cause.

A similar condition of affairs is liable to arise here unless the lesson to be derived from Continental practice is learned and applied. Our own Government, through H.M. Office of Works and other departments, is doing splendid service in the preservation of ancient monuments. In the quality and spirit of the later work great praise is due to their advisers, and in this respect Mr. C. R. Peers, as Inspector of Ancient Monuments, is deserving of our full commendation. There are unmistakable signs, however, that by reason of the system of accounts, estimates, supervision, absence of personal responsibility, and other routine necessary to a Government Department, the buildings under treatment have been receiving too much repair. The personal element breaks down under this procedure, and the staff are unable to cope with the extraordinary number of works lying in the extreme boundaries of the kingdom.

The fundamental principle underlying the preservation of ancient work in this country is that independent and sufficient treatment is required for each example. Danger lies in placing in the hands of great Government or ecclesiastical bodies the care and maintenance of these varied remains of the arts of past ages.

In 1865 the Royal Institute issued its well-known recommendations on the "Conservation of Ancient Monuments" and "Hints to Workmen." These were enlarged and revised in 1888, and form some of the most able and useful documents which we publish. The intervening period of twenty-five years which has elapsed has produced a considerable change of thought upon some of the larger principles of the subject, and a further revision would appear to be desirable. It would form an excellent work for the Art Committee or for a sub-committee of the Council.

Clause 10, for example, offers two methods in constructing a new roof, and, if we are to be truthful in our attitude to history, both are to be deprecated, and both conflict with the sound advice given in the "Hints to Workmen." The first is carefully to reproduce an old existing roof or to erect a new roof of the same pitch as the original covering, "as evidenced by a dripstone on the tower walls." Both would be misleading a hundred years hence or less. Surely the right course to adopt is to erect a roof both sightly and sound, which shall not aim at misleading those who are engrossed in the study of ancient building.

When these and other inconsistencies are removed and extensions made the recommendations will perhaps be more in keeping with current opinion on this important subject, and fit them better for the proud position claimed in Clause 17, as "embodying principles impossible to controvert."

General Aspects of Repairs.

The architect is consulted in order to determine the actual safety and probable endurance of an old building, so that steps may be taken to prolong its life. Everything shall be maintained that is sound, and repaired where weak, that will declare the history or the evolution of the building, apart from all consideration of taste or fashion, and, in most cases, of convenience in order to prolong the uses to which the building has been put, and from which it derives its interest.

Therefore, all reparation should be directed to the maintenance and continuance of the historical account. Repairs and renewals are part of that story, and should be self-expressive. It is the proud boast of certain architects and builders that their new work cannot be distinguished from the old. This is an unfortunate principle, as, although a harsh note may thereby be avoided by this precise imitation, nevertheless distinctive methods may be yet employed which are both sympathetic and sound.

The Society for the Protection of Ancient Buildings has rendered great service in the cause which its title proclaims. Its committee holds a weekly meeting, at which questions of great diversity are debated. Advice, based upon continuous and unrivalled experience in the treatment of ancient buildings, is freely given and largely acted upon, to the historical gain of the structures and to the advantage of the promoters. Their "Notes on the Repairs of Buildings" is now, after ten years' existence, undergoing revision and extension by a sub-committee, and it is hoped that when issued that it will be a standard work upon this perpetual subject.

An architect's difficulties generally lie in prescribing the right methods and materials; but not infrequently the correct diagnosis is the trouble. Preliminary examination cannot be too thoroughly undertaken. A hasty and limited inspection but imperfectly tells of the causes at work. Architects should personally view all defects and not depend upon the testimony of clerks of works and others. Again, no two buildings are alike, and all old works must be considered according to their particular character and requirement.

It frequently happens that on seeing a crack in a wall the architect, with that promptness associated with men of action, orders the careful underpinning of that part of the structure, whereas a fuller investigation would prove that the trouble arose from a roof thrust, or some transmitted wind pressure. Then while the operatives are laboriously carrying out the instructions and probably creating greater risks to the other parts of the fabric the promoters are busy straining every effort to collect funds from an overtaxed community to pay the contractor.

I have seen recently a church where some twenty years ago some thousands of pounds were spent upon structural repairs, which were soundly executed at the time. The diagnosis, however, was then faulty, for the vicar and churchwardens are now faced with precisely the same problem as presented itself at the time of the previous repairs. This church was an interesting example of strains being transmitted to distant parts of the fabric—a matter always to be remembered in surveying an old building.

Too much repair is frequently worse than too little. In that additional evils are spread by an excess of new work. Failures in walls, piers, arches, vaults, and the like require to be watched, in order to determine if the causes are active. For this purpose cement or, better, plaster of Paris "tell-tales" are placed over the fissures or lines of movement, and should be dated as they are applied.

Business Arrangements.

It is essentially desirable that where possible all reparation works be not subject to limits in time or outlay. I know of no better system than that all labour, plant, and materials should be hired or purchased by a builder or by a representative of the employer. All statements of rates of pay and hours of work of the operatives, together with all invoices of materials bought or plant hired, should be rendered by the builder to the employer weekly or monthly, as the case may be. To these sums shall be added the proportion or percentage rate due to the builder for his organisation.

In effect, agreements should be clear, yet comprehensive, setting out in simple language that the builder agrees to build and the employer binds himself to pay, upon terms and conditions laid down by the architect.

Shoring.

Shoring is required to support walls or roofs subject to movement or collapse, and cannot be too carefully or promptly undertaken; much damage is done by the careless handling of timbers. Arches and other openings will require centring, which should be designed to counteract the thrusts which have caused failures in the structure.

A raking or flying shore employed to buttress a building where repairs will occupy a long period of time should have solid concrete sills, so that the timbering be not affected by soil movement and that greater and more permanent abutment be secured.

Grouting.

No greater advance has been made in the repairing processes in recent years than in that of grouting. Many a condemned building has been saved and many a weak structure made sound by means of this, and more particularly when used under pressure.

It is to that eminent engineer Sir Francis Fox that we owe so much in the recent development of grouting by mechanical pressure. For a detailed account of the history of the grouting machine reference should be made to the paper which he read before the Institute in February 1908.

It frequently happens that a fractured rubble wall, a weak footing, an insecure bridge has failed, and can only be repaired by first consolidating the masonry before foundations or other repairs are dealt with.

Grouting by hand has its limitations, and is dependent upon gravitation. Under mechanical pressure the liquid rises to considerable heights and travels surprising distances.

Sir Francis Fox has grouted and saved historic bridges condemned by county authorities; he has grouted the walls of a large institution when an entire rebuilding threatened the proprietors, whose funds were unable to bear so great a strain; he has grouted eighteenth-century walls of a London building upon which a dangerous structure notice had been served by a watchful district surveyor who, after testing the repaired house, accepted the process for the more customary one of demolition and rebuilding.

Scaffolding.

It is most important that scaffolding and plant generally be utilised in such a way as to cause no injury to buildings by its erection and removal. For this purpose it is generally found that an independent scaffold is to be preferred. On first thoughts this type may be thought to be more expensive than the attached kind; but inasmuch as cutting away and reinstating are avoided the relative costs cannot be said to vary appreciably.

It is sometimes found that putlog holes remain in ancient walls, in which case an ordinary single scaffold may be used. No new holes should be permitted to be cut.

Rubble Walls.

It may be said that more than half the ancient buildings in this country possess what may be termed rubble walls, and are therefore the most general of the repairs with which an architect has to deal. Stone and brick in certain districts were not procurable in sufficient quantities to produce the desired masses. Rubble was invariably employed to supply the deficiency.

Rubble walls are sometimes misunderstood by those who repair them. It is the invariable custom to point the spaces between the aggregate materials after the matrix mortar has to an extent been removed by weather. The pointing is, moreover, usually performed by the aid of a metal trowel. In almost all cases no pointing is required.

The faces exposed to the rainy quarters are those mostly found to have these mortar interstices washed out; but it is only in the dire extremity of the solid materials having become loose that any repair is necessary, and, indeed, can be efficiently performed. Then it will be necessary to cut out convenient patches, prepare the wall, and build in the old material in a concrete manner with centring. Bonders should at the same time be inserted. In all cases flints used in repairs to facings should be "dug" and not used from surface collections.

Masonry.

The decay of masonry presents many difficulties in preserving or protecting ancient buildings. Stonework can be patched either with new stone or other materials; it can be entirely rebuilt, and it may be coated with preservative solutions.

The failure of the ashlar or other facing, moulded and carved work is due to atmospheric causes, and the action of the destructive agent will always vary according to locality or season. In this matter, therefore, no general rule can be applied to the treatment of stone buildings. There is to be observed, however, the governing principle of clearly expressing the repairs or replacements in all works of preservation.

Pointing.

Pointing is the only repair which is common to all buildings, and will vary in its materials and manner according to circumstances. When applied to historic buildings care should be taken that some distinction, however slight, should be made between the finish of new and old joints. What is of greatest importance is the determining of what shall be pointed and what left untouched; as a general rule this question should be governed by the extent to which open joints are liable to cause injury to walls by the admission of weather. A slightly recessed joint should never be touched; a deeply sunk joint must be pointed.

In the majority of buildings with which we in this country are concerned cement pointing is both detrimental to their preservation and to their appearance. Cement is a powerful ingredient, and is liable on setting to expand and loosen wall facing. With the many limes in use a good selection can be made for the mixing of sound mortar. Blue lias limes are, perhaps, the most durable in vertical work. The same material should also be used for horizontal work, such as the tops of walls, when stiffened by a limited admixture of Portland cement. Sand cannot be too sharp and coarse.

DISCUSSION.

Mr. Lionel Earle, C.B., C.M.G., Permanent Secretary of the Office of Works, in moving a vote of thanks to the lecturer, said that being but a layman in all matters appertaining to architecture he felt unsuited to his task. The only claim he could make to take any part in the proceedings was due to the fact of his being the permanent head of a Government Department particularly concerned with the national ancient monuments. Mr. Forsyth had referred in terms of generous praise to the work of that branch. The praise was, he thought, fully deserved. This was largely due to the knowledge, training, and taste of the chief inspector, Mr. C. R. Peers, and to the remarkable skill, amounting almost to genius, of Mr. Frank Baines, the architect in charge of the branch. The Department was, indeed, one of the best he had ever come across in a somewhat varied career in the public service. Not one single complaint had been received by him as to the way the work had been done. Mr. Forsyth hinted that some buildings have been repaired too much. That reproach did not apply to the Ancient Monuments Branch of his Department. Certain buildings, such as Holyrood, Glasgow Cathedral, Chelsea Hospital, Somerset House, and Edinburgh Castle, had not been under their care. He was, however, taking steps that some of these should be transferred to Mr. Peers's care, and all such buildings as could be properly classed as ancient monuments, whether in the occupation of the military or of the Government, would be under the charge of Mr. Peers and Mr. Baines. In France a movement was in progress to protest against over-restoration. All the efforts of his Department were in the contrary direction. Any member of the Royal Institute of British Architects who would care to make inquiries or to inspect any building under their care would receive every facility. He would be only too happy to place all their buildings before the public gaze if by so doing they would receive genuine criticism. The Ancient Monuments Consolidation and Amendment Act, passed last session, had bestowed on them much-needed powers to prevent acts

of vandalism. His Department had been giving very careful thought to the constitution of the Advisory Boards to be created under that Act for England, Scotland, and Wales, and these were now practically complete. He believed that when the names of the eminent men who had agreed to serve were published, as they would be at no distant date, these Boards would command universal confidence and respect. The question of the treatment of decaying stone due to the presence of sulphuric acid in the air was causing them much anxiety. They had made numerous experiments, particularly in the chapter-house at Westminster, with baryta water and other ingredients, but the results had not been satisfactory. This decay of stone was of far-reaching importance in relation to the preservation of ancient monuments, and he had persuaded the Treasury to make him a grant of money for one, two or three years, to institute a scientific inquiry into this matter. He hoped to obtain the services of Professor Laurie, of Heriot-Watt College. He had also moved the Foreign Office to inquire officially of the Governments of France, Germany, Italy, Greece, and America whether any scientist in these countries had ever evolved a treatment to combat this serious evil.

Mr. Thackeray Turner, in seconding the vote of thanks, remarked it was a difficult thing to say anything except in commendation of the paper. It was a most difficult subject. The paper had been most useful and ought to lead the way to much further consideration of the subject. Now that it was in the hands of the Government the question would have to be treated in a much more serious and wide way than in the past. It was, to his mind, perfectly shocking that our ancient buildings should be at the mercy of one single man uncontrolled except by a vicar and churchwardens. In such cases as he himself had been concerned with he had never gone solely upon his own point of view, but had consulted one or more people. One of the most curious outcomes of his work as secretary for the Society for the Preservation of Ancient Buildings was that, whereas for thirty years he had been striving to get buildings properly repaired, he felt sure that he had been affecting modern architecture. The repair of an ancient building was one of the most instructive studies for creating modern buildings. Every architect who under modern conditions started practice practically straight away from the schools laboured under grave disadvantages, for any builder could bowl him over with simple practical questions. A young architect who had the good fortune to work upon the repair of ancient buildings would receive the best possible education to fit him properly to carry out modern ones. Incidentally he might mention that since he had been living in the country and there carried out building work on his own account he had come to realise that by living on the job an architect thought of things which would never occur to him sitting in an office—the mere fact of having the materials at hand was in itself suggestive. His own belief was that architects in time to come would practice differently to what they had done in the past. Why there should be all that objection to renewing old work to look as near as possible to the old he could not understand. A work of art was a work of creation, but a copy could not be a work of creation. The more a church was restored the more sickening and deadly dull it became to him.

Sir Francis Fox, in speaking of grouting, which had only recently been introduced by pressure, emphasised the danger of putting the cart before the horse. The proper sequence of operations was first to timber up a building to prevent its collapse; secondly, to grout it; and afterwards to underpin. For tell-tales there was, in his opinion, nothing to beat Portland cement. Plaster of Paris he did not advise. There was, he thought, a good deal to be said in favour of the association of an engineer in the carrying out of any great work. The two working together made a very excellent pair.

Mr. C. R. Peers remarked that "independent" was the very last thing any repair should be. He believed that very great harm had been done in this country by the independent repairers. The first principle of the subject under discussion was that when they took charge of an ancient building they had got to secure its preservation so far as the architect's skill and the materials with which it was composed allowed. There were two things to be considered. First, they must not destroy the historical interest of that building; and secondly, they had also to consider its æsthetic side. Any repairs must not permanently affect it. Everything done must to a certain extent destroy the interest, but that could not be helped. They came to do their best to repair that building and not to sentimentalise over it. A very great distinction had to be made between buildings

in use and those in ruins. The former were alive, whereas the latter were dead. Ruins could merely be preserved as long as possible. Live buildings had an entirely different set of problems. Their history was still going on. So long as their repair was done in good and noble materials it had every right to be done. The precise method was merely a matter for private judgment. There need be no fear of deceiving people a hundred years hence as to what is original work and what is not. Of course, they could never eliminate the tomfool. Inferior materials should never be used: architects had to think of future generations.

Mr. George Hubbard, in putting the vote of thanks, pointed out that when people had to carry out the restoration of an ancient building they had not got to look at it from an æsthetic point of view entirely. In ninety-nine cases out of a hundred the history should be left intact. A striking example of the opposite course was known to him. Here a college chapel was richly adorned with Grinling Gibbons panelling. A very distinguished architect removed this Gibbons work and put in panelling of his own Gothic design instead. But, to his mind, the Gibbons panelling, even though out of character with the style of the chapel, should have been left in as part of its history.

The vote of thanks was then passed with acclamation.

Mr. Forsyth, in acknowledging the vote, said that the more they talked about the subject the less close they got to unity. He could not help holding to the opinion that to place all ancient monuments under one Department was going to produce unfortunate results. Each building should receive independent treatment such as they could not get under such an arrangement. Undoubtedly the Office of Works were doing splendidly. But it was possible to find fault.

It was announced that the adjourned special general meeting for the consideration of the report and recommendations of the Council in regard to the statutory registration of architects will be held on January 5. It was further announced that a business meeting for the election of members will take place on January 12, and at the same meeting the adjourned consideration of the draft revised schedule of professional charges will be resumed.

COURAGE IN COLOUR.*

By R. GOULBURN LOVELL, A.R.I.B.A., Vice-President S.A.
(Concluded from last week.)

Contrasts of Shades.—Having considered in a general way the contrasts of tones, we may now consider contrasts of shades. These are very frequently generally ignored, and this must be held responsible for most of the bad colour contrasts and combinations.

Different shades on the same scale make good contrasts. It will also be found that in any pair of complementary colours the different shades in each, used indiscriminately, will contrast well.

These observations apply not only to the pure colours in the chromatic circle, but also to the broken colours and the tertiary colours and greys.

The bad contrasts are usually those in which the contrasts are mixed; that is, a contrast in tones and a contrast in shades is found in the same combination. For instance, in any pair of good contrasting colours the corresponding shades of each will contrast well, while different shades will have a poor effect. Some æsthetic skill is required before making good mixed contrasts in tones and shades.

The Use of Pure Colour.—The foregoing are considerations upon the qualities of contrasts; there only remains the consideration of the quantities of contrasts. In most colour schemes it is desirable to have a dominant tone, which should be supported with a small proportion of a good contrasting colour, or with a small proportion of a purer colour of the same group. The nearer this supporting colour is to a primary, or the nearer it is to a pure colour, the less there is required of it. What is given up in mass is gained in brilliancy.

Only pairs of colours have been considered at present, but if, as a basis, these are well chosen both in qualities and quantities, it is not a difficult matter to determine upon another colour to provide balance or sparkle. This cannot be arrived at by any rule—feeling and judgment must be

* Abstract of a Paper read on December 11 before the Society of Architects.

employed. Examples will be given in describing the various decorative schemes.

It is desirable to make careful observation with the various experiments, and with the discs on the coloured plates, judging and comparing both with black and with white. Also make the tests in bright daylight, dull light, and night light. Note the observations, and apply them to one's daily work, using the charts as often as possible. This will lead to attempting the use of more pure colour and more striking contrasts in our surroundings.

General Rules to be Observed.—The following general impressions of colour-combinations will be noted, and others should be added as they are observed:—

1. The best contrasting colours are the complementaries.
2. Similar shades of two complementaries make excellent combinations.
3. Any shade of two complementaries make good combinations, but care must be taken that they are shades of the same tone.
4. Any shades of one colour make excellent combinations, but care must be taken that they are shades of the same tone.
5. Colours more than 90 degrees apart make good combinations, but should be only used together in similar shades, excepting the complementaries.
6. Colours only 90 degrees apart make risky but striking combinations, and should only be used together in similar shades.
7. Colours less than 90 degrees apart make bad combinations, unless in small gradations.
8. Different shades of all contrasting colours, excepting complementaries, make bad combinations. The primary colours *en masse* are too vivid for a dull climate, and the tertiary colours are too dingy, therefore the primaries should only be employed in small quantities, to give sparkle; if tertiaries are employed they should be associated with some bright colour of the same group, or of the complementary group.
9. It is always risky to use three primary colours alone in a decorative scheme; never attempt it if they have to be of about equal proportions.
10. Many pure or bright colours seen together have usually a bad effect. There is one method, however, by which a very beautiful and striking result may be obtained; that is, by using the pure colours in comparatively small quantities against a mass of black; a draper's window, for instance, might be draped with folds of a dull black material, and pure or bright colours could then be shown in small proportions quite indiscriminately, and they will appear to sparkle with brilliancy.
11. Pure colour should be used sparingly to produce a good effect; as, for instance, a bright-coloured trimming upon a broken colour or tertiary of the same range. The proportions and tones can be obtained by means of Disc Ib. A superior effect is secured by using the lighter shades for the principal articles, and the deeper shades for the accessories.
12. A pure colour can always be used on black with good effect; the black may assume a slight hue of the complementary.
13. A pure colour on white appears brighter and deeper, and faintly tints the white with its complementary.
14. A pure colour on grey of a proper height usually appears purer than either on black or white. The grey assumes a stronger hue of the complementary than either black or white. Care should be taken that the grey (which is a light tertiary) should be preferably of the same group, or of the complementary group of the colour used.
15. Don't be afraid of using black; it is far more helpful than either white or grey, particularly with striking contrasts. A striking window-display—say of white straw hats—can be obtained by draping black velvet or cloth as a background. This represents a contrast in shades.
16. Contrasts are more pronounced with cold than with warm colours. If deep and pale colours are placed together the latter is generally injured, unless the two colours happen to be complementary.
17. It is easier to combine deep broken colours than pure colours or light colours.
18. In colour-combinations endeavour to obtain balance; avoid one colour in a scheme attracting the eye. This can frequently be done by lowering the shade of the offending colour.
19. In all combinations it is necessary to introduce at least one warm colour. Some of the aniline dyes have a

degree of intense purity which is very undesirable, and when seen in strong daylight they appear to jump into the eye so as to give a painful impression and produce an extremely gaudy effect. This applies particularly to intense colours in large surfaces such as walls and complete dresses, &c. In smaller articles these intense colours are more allowable, and if associated, for instance, with black, they frequently produce an almost jewel-like effect.

20. To minimise a harmful contrast use a smaller amount of one of the colours, or introduce a third colour of considerable distance in the chromatic circle.

21. Greens are most difficult to manage together; a combination of various tones of green alone, even if carefully graduated, is not pleasing. It is necessary to introduce another colour to relieve the combination from dullness.

22. Bits of blue do not look well. Blue should always be used to the fullest extent possible.

23. Dull rooms require bright colours, and in bright rooms use dull ones. A sparkle can be introduced into the dull colour by a small proportion of its complementary.

24. The treatment of a room, or of a window, should be considered as a whole. Every colour introduced will have its effect upon the other colours.

25. Great repose and dignity is obtained by plain surfaces. It is amazing to find what satisfying results are obtained by plain coloured surfaces. Only care and courage are required in selecting the tones.

Far more effect can be obtained by colour than by ornament, and in addition to this, there is far greater economy in the cost.

Economy of Cost.—It is the purpose of the schemes shown in the recently published books on "Home Interiors" that they should entail little or no extra money to that usually expended on similar rooms if they had been treated in the orthodox manner; that is with ornamental cornices and centre ornaments, exaggerated architraves and mouldings, stained-glass windows, and heavy venetian blinds; ornate stoves and mantelpieces, and a decent quality of wall paper. The carpets, curtains, furniture, and fittings might all be comfortable and lasting, but possibly mixed together without any proper consideration for the general effect of the whole.

A well-appointed room is one where nothing particular is in evidence excepting an agreeable sense of comfort and utility. To obtain this requires far more thought and knowledge than is generally supposed. Not only must the room be a pleasing unity in itself, but the best results must be secured from its component parts and the general effect of the room must accord well with its surroundings.

This is a large field to cover: many features have to be considered, and controlled by definite guiding principles. They have to be co-ordinated into one agreeable whole, and expert knowledge of the various industries has to be applied before reliable advice can be offered.

A well-considered scheme appears to be worth far more than its actual cost. In this respect alone a great economy is effected and will repay the time and thought required in considering the matter.

Health-Giving Colours.—There is one other aspect to be constantly borne in mind in the employment of colour. I leave this to the last as it may be considered of the most dominating importance. That is the selection of colour from a scientific standpoint. The scientific influence which colour has upon life generally has been but little understood. It has been conclusively proved that whereas blue has a most stimulating and health-giving power, green produces entirely the reverse.

Anybody can prove this for themselves if they will take a series of cloches or the glass bells used in French gardening. These should be of all colours, and if placed over any living object, such as plants, insects, &c., it will be found that those under the blue cloche will increase in size, vigour and vitality, and those under the green cloche will wither away rapidly. It will further be found that the colours between the blue and the green will run in the following order of life-giving properties:—blues, violets, yellows, reds and greens.

You will further realise how in the selection of the colour decorations of our homes, this aspect of the question should be constantly borne in mind, and how much more so in the hospitals and sanatoria, and these, unfortunately, frequently err in this respect. Whereas a patient will have a hopeful stimulating outlook on life if lying within blue surroundings, an entirely opposite effect will be obtained if surrounded by greens and reds.

ROYAL ACADEMY SCHOOLS.

IN our issue of last week we gave the full list of the awards at the R.A. Schools.

Sir E. J. Poynter, P.R.A., in distributing the prizes, gave the following address:—

In reading over my address of last year I find that I fully entered into the question of the influences which in the present phase of artistic movement are calculated to affect injuriously, both by example and precept, your work as students, and I shall only again touch on these points incidentally, if at all, in my present discourse, although inferentially what I say may have some bearing on them.

I propose, therefore, that my reflections should on this occasion take rather the direction of placing before you some of the great qualities which have distinguished the art of painting in the past, than of declaiming against what is to be avoided in its present anarchic condition; for the great principles of art will always be the same, whatever may be the pretensions which distract attention from them from time to time.

With this view in mind I shall endeavour—so far as it is practicable to deal briefly with so complex a subject—to put before you for your consideration a few scattered reflections on the elements of greatness in the works of the great masters: what it is, in short, which makes them great.

To treat adequately such a subject would involve a review of the whole growth and development of the art of painting from the thirteenth century onwards and demand a wealth of illustration gathered from the vast field of production of at least four centuries. My remarks, therefore, may be somewhat discursive, illustrated by only a few examples, drawing your attention to the more general aspects of the theme which I have set myself.

The schools of Italy from the time of Giotto to their culmination in the sixteenth century hold by general consent the first place in the art of the moderns, and it will be well to consider the attributes which give them their pre-eminence.

Broadly, we may say it is the combination of the highest qualities of the mind with the decorative sense and a complete mastery of execution.

The primary object was decoration—the adornment with beautiful imagery of the walls of their churches and palaces and public buildings; their pictures were but part of the general scheme of decoration. The art was purely decorative in its first intention.

The term “decoration” is of wide application, and consequently of ambiguous meaning and liable to misinterpretation. In common parlance we may use it in connection with anything gay in colour or otherwise ornamental—as a street decorated with flags or a ball-room with flowers, or of a wall-paper or a piece of furniture. But used in connection with the arts it has a much higher meaning as signifying the harmonious arrangement of forms and colours; in this application it implies the artistic qualities which appeal to a cultivated aesthetic sense as distinct from those which appeal to the emotions or the intellect.

It is the combination of these two components in a work of art, beauty and dignity of aspect with command of the imaginative faculties, which is found to be paramount in the works of the great Italian masters, and places them in the front rank. I have heard this word used in a disparaging sense, as though a painting which presented a decorative aspect was thereby on a lower level as a work of art than one which should be treated with the sole object of putting the subject forcibly before the spectator; but this is to my mind a mistaken view. The decorative quality is at least as important for the impression which a work of art should produce on the mind as the power of rendering the subject and conveying the meaning of the artist, and that painter stands highest who can make use of both in an equal degree. It is, in fact, on the decorative side that the Italians of the Renaissance are supreme. Their power of clothing thought and invention with the utmost beauty of form and colour make them unique in the world of art; and their most renowned works stand out as supreme in this quality.

Certain of the Italian schools are renowned above others for their mastery of decorative treatment, notably the Venetians, not only, be it understood, for the splendour of their colour, although, as is universally acknowledged, they stand unrivalled in this respect, but for the magnificence of their schemes of composition, in which the balance

of form and chiaroscuro take equal place with the ordering of gradations and contrasts of colour.

(Chiaroscuro, I may explain, is a term which is rarely met with now, but it is expressive and convenient because it has no exact equivalent in English. It was much in use by Reynolds and our professors of painting in the early days of this Institution, who generally devoted a whole lecture to this subject. It means not only light and shade, but the distribution of light and dark masses in a picture, whether of colour or tone.)

Invention may show itself as fertile in these matters as in the choice and treatment of a subject, and this was peculiarly the strength of the Venetian school.

Their art at the beginning is almost purely decorative. In the altar-pieces of the Vivarini, Bartolomme, and Antonio, the richly elaborately carved and gilt Gothic frames are an important feature, and compete for the effect of the whole with the figures of the saints which fill the gilt panels.

In these and in other works of the earlier school which culminated in Giovanni Bellini the aim throughout is for beauty and harmony—beauty of face and form, beauty in the backgrounds, beauty of colour, and a harmonious combination of all. There is, as a rule, no appeal to a higher emotion than calm sentiment, and they make no point of the delineation of character beyond adopting certain types for their saints and apostles. That intensity of expression and individuality which is so conspicuous a feature in the works of the Florentine artists of the fourteenth and fifteenth centuries is rarely to be found in their work, which, as a general rule, aims at a calm and poetic beauty, not appealing to the deeper feelings, but satisfactory to the eye and restful to the mind.

It was Giorgione who brought about the change in Venetian painting and did so much to raise it from the trammels of the earlier styles; and the school which formed itself on him culminated in three great masters—Titian, Paolo Veronese, and Tintoretto. It was Titian who completely freed the Venetian school of its purely decorative character, and in his own work rose to a point which makes him, if not the greatest of painters in the sense of having reached the sublime heights of Michel Angelo or Raphael, the one whose powers are the most universal. He combines more of the great qualities of the art than any other before or since. He is perhaps the greatest portrait-painter that the world has seen. If Holbein was his equal in rendering character, Titian surpasses him in his mastery of the brush and still more in his comprehension of what makes a picture—the power of subordinating detail and accessories, while giving them their full value, in favour of the most important characteristics. And if Velasquez was his equal with the brush and in the rendering of character and of the dignity of his figures, he lacks that finer poetic sense which realises that there is a soul under courtly manners. This it is which infuses the work of Titian with a higher beauty, just as his Venetian sense of colour trans-fuses the canons with a glow of warmth unknown to the more literal Spaniard. That Vandyke owes his greatness as a portrait-painter in no small degree to his study of Titian is well known, and even Rembrandt is said to have kept engravings of Titian's works before him. The great qualities of Velasquez are more obvious to the student; while the work of Titian is so simple, his wonderful art conceals his method so admirably that its supremacy above that of any other painter is not at first sight so evident.

Of all Venetian painters, Paolo Veronese, from the purely decorative point of view, stands highest—mere decorative splendour takes with him its highest expression.

It was the fashion in the days of the foundation of the Academy to disparage the Venetian school as sensuous in opposition to the more exalted conceptions of the great masters of Florence and Rome. Sir Joshua Reynolds himself draws the comparison, placing before the student in his discourses the inferiority of the Venetians to “the nobler schools of painting,” although allowing the surpassing excellence of Titian in many of the passages. But Paolo Veronese fares but badly and gets little credit either from him or from successive professors of painting in the Academy. Their minds were too much biassed, I imagine, by the opinion of Vasari, who could see only relative merit in the work of any but his beloved Florentines. And also, no doubt, by the somewhat acrid remark of the great Michel Angelo, which Sir Joshua quotes—“that Titian's manner and colouring pleased him much, but that it was a pity they did not learn to draw well in Venice, and that they had not a better method of study.” There is, no doubt, great

truth in this view, and it is well to keep a sense of proportion in all things. But there is an impassioned side to the art of Titian and Tintoretto which, though expressed by different means, competes in grandeur of sentiment with the great religious works of the Florentine and Roman schools, and which Reynolds and the other writers did not take sufficiently into account. Moreover, we cannot always survey the world from a pinnacle or a mountain-peak, and I cannot think that Reynolds, in his remarks on Veronese, did this great painter justice when he speaks of him as having "exhausted all the powers of florid eloquence to debauch the young and inexperienced." I only wish that you as students never chose a worse model. I confess that looking at Paolo Veronese from the point of view from which he ought to be judged, that of a purely decorative artist, he is of the highest eminence, for his great works display beyond others of the kind those qualities on which I have dwelt as appealing to a cultivated æsthetic sense, in contra-distinction to those which appeal to the higher emotions.

You have, of course, in order to appreciate those works which he executed for the decoration of convents and churches, to dismiss from your mind all expectation of religious feeling. In the great banqueting scenes, painted for the refectories of convents, which are his masterpieces, and which are founded on some episode recorded in the Gospels, there is no trace of what would at first occur to a religious painter as appropriate to the place for which they were destined. His whole powers are directed to the representation of a sumptuous and splendid festivity. In the three finest of these works, the "Marriage of Cana" in the Louvre, the "Supper in the House of Simon the Levite" in the Accademia at Venice, and a third of the same subject in the Brera at Milan, the Saviour is reduced to an almost insignificant personage, to whom none but one or two of the company in his immediate vicinity pay any attention. This is not entirely Paolo's fault, for he only reflected the spirit of Venice in the height of her power, when religion in its deeper meaning can have played but a perfunctory part in that "triumphant city," mostly as affording occasion for magnificent ceremonial. But set aside this objection and look upon these pictures, especially the "Marriage of Cana," which is the one probably the most familiar to you as an ideal presentment of some splendid banquet of a Venetian patrician. What an amazing outpouring of invention they display. What a mastery of composition, what a science of colour, what exuberance of life, what energy in the delineation of character and expression; every figure is definite in intention (in the "Marriage of Cana" there are some eighty of them), every gesture has its meaning, every group its story. Less sumptuous but of a higher standard as a decorative composition is the great painting of the "Supper in Simon's House," which occupies the end wall of one of the saloons in the Accademia at Venice. Here the personages are more detached, and the mastery of the composition lies in the way that the eye is led from group to group, so that the whole is, as it were, chained together from end to end of the picture by the gesture, the turn of the head, even the look in the eyes of each figure—every pose being at the same time as natural as it is artfully contrived, the whole scene as free and full of life as if it had been thrown on the canvas at one sitting, the architecture, that indispensable aid to decorative work, binding it all together and contrasting its severity of form with the varied groups and connecting them by judiciously disposed masses of light and shade; light tells against dark and dark against light in well-balanced spots and broad masses; with a wondrous skill, while all appears so natural that it hardly seems an art. If I ask myself why I am so impressed, it is that the painter feels the life and the splendour that he is creating, there is no working for effect, no trace of mannerism, no affectation, no display of painting for its own sake; but there is the genuine love of the artist for his work, and the highest possible technical skill always used in subordination to the subject and as a means of expression.

Rubens was his only equal in splendour of colour and exuberance of composition; he has the same complete mastery of technique, with the same indifference to character in his religious works. But Rubens shocks us by the generally ignoble character of his heads (except, of course, in his portraits). If Paolo gives to his actors in the Biblical scenes the type of the Venetian of his day, and dresses them in the costume of his time it is at least a noble type not altogether unsuited to the dignity of the subject; but the heads of Rubens's

saints and apostles are mean, and all the more grotesque from his efforts to endue them with an ecstatic or holy expression. Rubens's mannerisms frequently shock us, his gross Magdalens and his exuberant goddesses offend us; his taste, in short, is at fault. Paolo Veronese is absolutely free from mannerism, his figures are nature itself, and his women are full of grace.

I should like to enlarge on the amazing powers of Tintoretto and his magnificent schemes of decoration, quite differing from those of Paolo Veronese, not only in the character of their colouring, but as being imbued with a depth of feeling and a grandeur of conception to which the Venetian was a stranger. It is astonishing to me that Reynolds should have classed the two together for reprobation, to the point of citing Vasari's unconsidered opinion. But to deal fairly with the works of this great genius would involve the writing of a special essay. The fine appreciation of him in Ruskin's "Modern Painters" cannot be surpassed.

I have said enough, perhaps, to show you that the love of splendour and colour is the glory of the Venetian school, and also its failing, where the attraction to the eye outweighs the appeal to feeling. How Titian raised the school to a high level I have already hinted, nor is there any need for me to elaborate the point. But it is noticeable that it was not until comparatively late in life (not until after the year 1540) that Titian began to show in his work that deeper feeling which ennoble his other splendid attributes. As he grew older the devotional feeling in his religious subjects became more profound. The "Entombment" in the Louvre is the only one of his earlier works in which the devotional feeling and the sense of tragedy shows itself, even above the masterly drawing and the gorgeous glow of colour. The celebrated "Assumption of the Virgin," painted at about the same period of his life, always has to me somewhat of a theatrical air. But there is at Madrid another picture of the "Entombment" of overwhelming pathos, in which the colour scheme plays a secondary part, all being concentrated on the central figure and the grief of the surrounding group. This is a noticeable feature of Titian's later work, and is most conspicuous in a "Christ on the Cross," painted quite late in life, which I saw in the public gallery at Ancona. I can conceive no grander presentation of the subject than this, where the terrible pathos of the scene lies almost as much in the tragic depth of tone as in the expressive design of the figures. Besides the Saviour, there are but three—the Virgin Mother, St. John, and a monk, apparently St. Dominic, who is embracing the foot of the Cross with a passionate gesture. Each one is in itself a masterpiece, and the figure of the Saviour might have been designed by Michel Angelo himself, so impressive is it in the grandeur of its form and the masterly drawing. The figures are lighted against a deep-toned sky by a gleam from above, which, casting deep shadows downwards, throws the faces of the Saviour and the Virgin Mother into gloom. Here we have the combination of the Venetian use of tone and colour, or, to use the more correct word of "chiaroscuro," as a factor to enhance the tragedy, with a severity of design worthy of the Roman school.

If we turn from the Venetian to this latter and the other dominant school of Italy before the sixteenth century—that of Florence—we shall find that the decorative scheme is again the main object, and by no means plays a subordinate part; but it is founded more on beauty and distinction of form, and harmonious composition of lines and groups, than on the effect of colour or light and shade. Colour is naturally a necessity in any composition, but with the Florentines it is not used in the Venetian way to aid in conveying an impression. Light and shade again come in as a necessary accompaniment of any representation of life, but it is not until Leonardo da Vinci educated the school from a somewhat dry pursuit of form to understand the value of light and shade that use was made of this form of chiaroscuro to enhance effect and give prominence to the leading features of a composition; in Andrea del Sarto alone do we find a richness of colour and depth of tone which is more Venetian than essentially Florentine, though his forms have that selected beauty which is so marked a feature of the school.

On the other side of the art, that which appeals to the emotions and the intellect, they devote all their powers to the direct telling of the story and elucidating their meaning without superfluous accessories. It is this concentration on the subject and its direct representation by human action and expression alone which forms what used to be called the grand style. Here it is that Michel Angelo Buonarrotti stands apart and supreme. With him the human form was the sole means of expression which he ever used. Colour with him, though always agreeable, takes no further part

in the decorative scheme than that of being well distributed. It is on the composition and expression of form in its grandest development that he stands a giant above all. We find this same grandeur of style in Raphael when he had developed his full powers, combined with that decorative sense on which I have dwelt as so essential to a complete work of art, and to be found in perfection in the Italian schools alone. In the famous Vatican frescoes, of which you have always before you the admirable copies in the schools, especially in the two first which he painted, the "Theology" or "Dispute of the Sacrament" and the "Philosophy" or "School of Athens," we have perhaps the highest point which the art of the moderns has ever attained, and not the least on the side of their decorative qualities. Their excellences have been so often dwelt on and pointed out in text-books and special treatises, notably in the lectures of the early professors of painting here, that I will not detain you longer by dwelling on them, nor could I possibly do such justice to the theme as Fuseli has done with an eloquence that I cannot pretend to.

I feel that I have but touched the fringe of a great subject, and that my address has been somewhat fragmentary and discursive, but I should be glad to think that I have interested you on a few points in the practice of the arts which are in danger of being forgotten when mere studies from nature, without choice or selection or sense of beauty in form or colour, form so large a part of the contributions to our exhibition.

You would, however, not like me to conclude my address without some reference to the immediate subject of this annual meeting. I made some severe remarks on the last occasion on some of the classes of work done in the schools and sent up for competition for the prizes. It is the opinion of the members that there is in some directions a decided improvement where I had occasion to find fault on previous occasions, in the drawings from the life conspicuously; and I am glad to find some excellent work done in the Antique School, for there is no better, no other, I might almost say, groundwork for the study of the figure than careful study from the antique. In the prize drawing in this competition the student has set an admirable example of what such work should be, though I find some fault in its being too much of a picture involving perhaps a certain waste of time in elaborating the background. This, however, is a very venial fault, if it be one, and the student has evidently enjoyed carrying his work to completion in this way, and there are others well worthy of commendation. In the paintings from the life, the prize drawings stand out somewhat above the rest, though as a rule the work is thorough and painstaking.

In the competition for the Gold Medal in Painting, I find only one student who has grappled with the difficult part of the subject—the angel who came down and troubled the waters—and in this he has made a praiseworthy and successful effort. But, strangely enough, he has completely neglected to treat the rest of his subject in accordance with the Scripture story—instead of the sick, the lame, and the paralytic who came to the pool to be cured of their ills, we have a group of sturdy nude females utterly inappropriate to the scene. This I am afraid is only in accordance with a pretentious affectation of the day, that a painter has no need to be bound by rules, and the only use of a picture is to display the painter's cleverness. The painting that gained the prize has avoided the difficulties of the angel, but the work expresses the real feeling for the solemnity of the subject, and much refinement in the expression and character of the heads. Of the Sculpture competition for the Gold Medal, I can only say that the standard throughout seems to me to be very high, and the prize work a remarkable example of modelling with a fine feeling for form, though there is again here some affectation in neglecting to tell the story, and using the subject for a mere display of skillful technique. Of the other subjects of competition, I will say nothing about the paintings from the head, for there would be nothing agreeable for you to hear. The studies of a draped figure, on the other hand, though fewer in number than I could wish, are of a high character, and the one which gained the prize just what we wish to see.

I cannot conclude without referring to the admirable work of the last winner of the Gold Medal, Miss Williams. I prophesied at the time a successful career for this young lady, if she had health and strength to support it, and what I hoped for has been more than realised, both in quantity and quality, and in the excellent choice of subjects for study, ranging from the frescoes of Raphael (of which the spirit is admirably given) to a most faithful copy of a large work by Franz Hals, and in her studies from nature she has amply

justified her career in the schools, and affords an example of industry and enthusiasm for her art which cannot but be of advantage to other students.

SHEFFIELD SOCIETY OF ARCHITECTS.

At a meeting of the above Society at Sheffield University on Thursday, the 11th inst., Mr. Patrick Abercrombie, M.A., delivered a lecture on "The Architectural Aspect of Town Planning."

After alluding to examples of Roman and Renaissance town planning, the lecturer remarked that the comparison of Renaissance town planning with ornamental gardening was significant, for there could be little doubt that the influence exercised by gardening on town planning was really great. All the features were evolved in gardens before they became the stock-in-trade of the town-planner. The earliest piece of "popular" town planning in Europe was represented by the Champs Elysées at Paris, which was originally purely a drive through the park for the French King to approach his private garden. When one called to mind the gorgeous effects of the avenues of Paris one was astonished to realise how many of them were purely garden features. Of more purely architectural conceptions the most notable example was the Place de la Concorde. The Rue de Rivoli represented the most autocratic control that had ever been exercised architecturally over a modern street.

Of less architectural importance, but of considerable interest, was the town planning of the west end of Berlin carried out by Frederick William I., about the year 1730. The Unter den Linden was a Royal garden or park feature incorporated in the town.

The plan prepared by Wren for the rebuilding of London avoided the architectural errors both of Berlin and Washington. He did not think any man had produced a better plan in many respects than Wren's plan. It was better than a good many Continental ones. The housing sequel to architectural planning was not manifest during the slow and sedate growth of the eighteenth century, but with the sudden industrial development of the nineteenth century, and in Germany particularly since 1870, it had had disastrous effects. The density of population per inhabited house in Berlin was extraordinarily higher than it was in London, Paris, Liverpool, and Sheffield. The traffic salvation in the English industrial towns had been found in the old country roads, which had given at least some lines of guidance in the building of the towns.

The lecturer said that with the passing of the Town Planning Act a new era had opened for the future of English town development. If the architectural profession was left out in this matter he thought the profession itself was to blame. Housing, too, was drifting out of the hands of the architects, and he thought, for the sake of the country in general, it was a pity that architects had not some say in the matter.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The seventy-fourth annual general meeting of the above body was held at the Institute rooms, No. 31 South Frederick Street, Dublin, last week. The President, Mr. A. E. Murray, occupied the chair. The following Fellows and members attended: Messrs. F. Hayes, E. H. Morris, J. Holloway, R. Stirling, C. A. Owen, G. C. Ashlin, C. H. Ashworth, R. O'Brien Smyth, J. Geoghegan, P. L. Dickinson, R. F. Beckett, C. H. Mitchell, R. Caulfield Orpen (Vice-President), Professor Scott (Hon. Treasurer), and F. C. Hicks (Hon. Secretary).

The scrutineers of the ballot for the election of President and Vice-President to serve for the ensuing three years submitted their report. The President declared Mr. R. Caulfield Orpen, R.H.A., Fellow, elected President of the Institute, and Mr. W. Kaye-Parry, M.A., Fellow, Vice-President.

The scrutiny of the ballot for Council disclosed the following result: C. H. Ashworth, L. O'Callaghan, J. H. Webb, Frederick Hayes, C. A. Owen, A. G. C. Millar, G. P. Sheridan, G. L. O'Connor, and C. J. MacCarthy.

The Hon. Secretary read the report of Council for the year 1913.

Mr. C. H. Ashworth, in moving the adoption of the report, said it chronicled the progress and prosperity of the Institute. The influence of the Council had on several occasions been used to the benefit of its members. He noted the changed conditions of membership of the Institute, and he urged the younger members to support this examination as

the gate of entry to the Institute. This examination was established mainly with the view of affording an incentive to students in Ireland.

Mr. G. C. Ashlin seconded the adoption of the report.

Mr. O'Brien Smyth and Mr. R. Stirling supported the adoption of the report, which was passed unanimously.

Mr. Robert Stirling and Mr. E. H. Morris were elected auditors for the ensuing year.

Mr. J. Geoghegan was nominated by the Architectural Association of Ireland to represent that body on the Council of the Institute.

Professor Scott, Hon. Treasurer, submitted the financial report of the Institute. The accounts showed a substantial credit balance.

Mr. Robert Stirling proposed the adoption of the report. Mr. C. A. Owen seconded. The report was adopted.

The President proposed that a very old and valued Fellow, who, owing to failing health, had tendered his resignation, be elected an honorary member of the Institute, which was approved.

The President read his valedictory address, and, in returning thanks, congratulated the members on the results of the two recent competitions, which showed that Irish architects are capable of designing buildings which will be a credit to our country. He also referred to the high marks obtained at the examination for studentship, which presages a high standard of qualification in the coming members.

He then placed on the table the loving cup originally presented to the late Sir Thomas Drew by this Institute, and lately bequeathed back to the Institute by his widow. The health of the President-Elect was drunk by the members. Mr. Orpen responded, and desired to be allowed to propose the health of Mr. Murray, the outgoing President. Mr. Owen seconded, and the toast was drunk with musical honours.

ENGLISH NEO-CLASSIC ARCHITECTURE.—IV

THE seventh of the course of ten lectures delivered on Thursday evenings at London University, Gower Street, W.C., by Mr. A. E. Richardson, F.R.I.B.A., dealt with THE GRÆCO-ROMAN EXTENSION OF THE ESTABLISHED STYLE.

LECTURE VII.

A change in architectural taste became conspicuous in England during the second half of the eighteenth century. It is next to impossible to give an accurate date when the direct manifestation of Greek art assumed the ascendancy, but the fourth year of George III.'s reign may be taken as a convenient starting point. During the early stages of the neo-Classic development, the tendency had been to approach closely to the excellence of the antique without actually reproducing prototypes. The Italian interpretation of pure Classic forms provided the framework for the English architects to build upon. A widening desire for a more thorough understanding of Roman grandeur led to the skilful adaptation of Classic detail: it also encouraged the spirit of research to such an extent that the veil was lifted from the mysterious Grecian Isles, and marvels of art buried for centuries were eventually revealed. At the middle of the eighteenth century the majority of Englishmen then resident in Italy began to cast longing eyes towards the neighbouring archipelago.

In 1757 Stuart and Revett were elected architect members of the Society of Dilettanti, a departure from the usual procedure, and in the same year they embarked from Venice for Athens. After many delays the first volume of their "Antiquities of Athens" was published in 1762. It was the first of a series recording brilliant archaeological research undertaken by Englishmen in Greece and Asia Minor. James Stuart became the centre of a fashionable circle intent on "Grecian gusto," and he received the appellation of "Athenian" Stuart. But an inspection of his architectural designs merely shows the studied application of an ornamental Greek veneer to compositions of vernacular type. A valuable collection of his drawings is held by the Royal Institute of British Architects. Nicholas Revett did not attain to as great a prominence as an architect as did his quondam partner for research; his work as regards quality developed on parallel lines to Stuart's.

Although the "Antiquities" was received with acclamation by people of taste and culture, the majority of the architects then practising were unable to fully appreciate the possibilities which would accrue to native art from the right adaptation of the detail set forth. The

actual composition of the Greek prototype offered but little encouragement to English eyes accustomed to the variations of Palladian composition. By some exponents the detail was assimilated almost sub-consciously, its finesse and ethereal beauty acting as a magic charm. The sheer weight of public opinion and sentiment educated on strictly Palladian theories could tolerate nothing more than the grafting of a Greek skin on to the virile Roman Palladian body.

Robert Adam was the first to see the possibilities of Greek ornament and its application. His fertile mind and facile pencil enabled him to freely juggle the sedate formality of honeysuckle and scroll into the panelled surfaces of his own creation. The result was that the leaders of fashion were unable to distinguish between the merits of Stuart's and Adam's work, and became dazzled by the luxuriant adaptation of the latter. And the artist who was really a great architect was overshadowed by the man who captured the popular fancy.

The principal architects of the latter years of the eighteenth century, next to Sir William Chambers, Gandon, and the younger Dance, were Henry Holland, Thomas Hardwick, Samuel Cockerell, Thomas Harrison, James and Jeffrey Wyatt, and Sir John Soane. The latter coterie were all exponents of the Græco-Roman style. John Nash, George Repton, and others of minor renown followed the development for a quarter of a century until their work became merged in the Greek phase, and took on a different character. Even those architect-engineers, the Rennies, and William Tierney Clark, held firm allegiance to the Græco-Roman school.

By far the most remarkable architect who rose to prominence during the late eighteenth century was Sir John Soane. No man did more for the advancement of architectural study, no man ever engendered such bitter opposition as Soane experienced, few have devoted such care and attention to their work, or endeavoured to teach others to reverence the esoteric art of architecture. Yet Soane's motives were subjected to attack and invective; he lectured as Professor at the Royal Academy, and was suspended for two years for his criticism of other architects' works. He collected pictures, statuary, books and drawings which to-day are priceless in value; all these he made accessible to the students of the day; and he founded the Soane Museum, in itself a national asset of the first rank. In his studies he was indefatigable; while his drawings and designs show him to have possessed a mind capable of audacious flights of originality. Soane introduced central heating at a period when such a system was undreamt of; he contrived a system of fireproof construction offering possibilities for modern application, and he developed the theory of academic planning for visual effects until it became in his hands pliant and tractable.

Soane's lectures at the Royal Academy, of which the first was delivered in 1807, gained a great deal of attention from architects and students of the day; and although his immediate disciples were few in number, the soundness of his teachings was felt throughout the nineteenth century. The decorative system of Classic vaulting, carried to such perfection by Robert Adam, was further advanced and strengthened by Sir John Soane, who endeavoured to impart a certain Gothic interest to his domical and other vault surfaces; but his passion for tattooing Greek frets on every plain wall at the sacrifice of legitimate architectural form proved his weakness. While Soane was content to keep a restraint upon his exuberant imagination, his work shines. But he worried his designs and lacked confidence to leave well alone. In a slighter way than that exhibited in Vanbrugh's works, he allowed his obsession for a picturesque sky-line to master his taste for reticence. The upper portions of many of his buildings run to complexity by reason of the innumerable acroteria, vases, and finials introduced.

The buildings of Sir John Soane, totalling to over eighty works in all, take the highest models from the history of the world's architecture; they inherit the mighty spirit of antiquity; and while in theme elevated to the academic platform, and rekindling the flame of Classic inspiration, they are as English in tradition as other more frequently quoted buildings of the eighteenth century.

Soane, however, took too exclusive a view of the subject; he sought to push the personal element to an extreme, and endeavoured to make up by variety in incident what he considered needed improvement—namely, the continuity of tame detail. Had he avoided these eccentricities of taste which he cultivated as novelties, the repose accruing to the aspect of his buildings would have been very great.

Soane strained every nerve and faculty to advance beyond the limits of his own day, and by sheer genius stood alone. Such is the merit of his architecture, and such the polish of his individual manner, that whatever distaste we may experience for the exotic ornament, the greater architectonic value of rhythmic composition compels attention.

LECTURE VIII.

THE PERIOD OF THE REGENCY. THE MERGING OF THE GRÆCO-ROMAN AND GREEK SCHOOLS.

The period of the Regency forms a fitting crown to the eighteenth century, to the making of which every artist, writer, and philosopher had contributed, and which even in its passing lent lustre to the ensuing age of mechanics and commerce.

Between 1800 and 1820 there was an abnormal expansion of cities and towns. The first fruits of the industrial age were ripening, and this in spite of the general impoverishment occasioned by the prolonged Continental wars, which made the Continent almost a closed book. Eighteenth-century London burst its bounds, and absorbed the immediate villages; the mills and looms of Lancashire and the North were working relentlessly, and converted miles of smiling country into a chain of industrial hives. Even Edinburgh added to her Classic eighteenth-century gown, while Dublin stretched a string of villas along the bay to Dalkey. Inland spas attained unparalleled growth, and fishing villages were converted to fashionable resorts. Under the direction of Telford and Macadam the trunk roads improved, and coaching became elevated to a fine art, with the Regent as charioteer-in-chief. The age of iron and steel, of bridge building, of gigantic harbour works, and architectural engineering heralds the nineteenth century.

In architecture we find that by 1820 the Greek theme is in the ascendant, although as regards the composition of masses the eighteenth-century theory still holds good. The revival of literature which came into being at this time exerted no small influence on the change in architectural taste. Keats and Shelley extolled the Classic spirit, while Scott and Wordsworth played the timbrels of the knightly age. Many young architects, who subsequently acquired fame, left England at this time to spend a term of years studying in the Hellenic Archipelago, and on their return were immediately commissioned to design public structures; naturally, their works reflected the design of the temples they had encountered. The Greek phase, however, was purely a transitory one, and led to better things: it must not be judged in any other than a tolerant spirit, because not only does it reflect the discipline of the age, but it proves the determination of English artists to emulate the greatest art the world has ever produced.

At the outset of the nineteenth century we see the beginning of that great divergence of opinion which resulted in the "Battle of Styles." The Classic tradition was split into two sections by the Mediæval wedge. One half was shivered and lost; the other proved too strong to shatter, and has survived to the present day. To make the simile clearer, the Classic tradition, which up to 1830 had embraced both civil and domestic architecture, was henceforth developed almost solely for the design of public and official buildings, while the Gothic enthusiasts claimed the mastery in other directions. Indeed, the ambidexterity of many exponents who vacillated between the two branches contributed in no small measure to the temporary checking of Classic taste. But the so-called triumph of the opposing school was proclaimed too early. The deeply rooted Classic tradition withstood the shocks of storm and controversy of the later years of the nineteenth century, although at times its interpretation left much to be desired; so strong was its spirit that after passing the cycle of a hundred years it is again in the ascendant.

We frequently hear it said that "architecture died a natural death at the close of the eighteenth century," that good taste came to an abrupt stop about the same time, and various other encomiums of similar inaccurate meaning. The reason for such censure is the result of failure to read the more recent events of English history. It has been overlooked that even in an age teeming with literary products the architect still remained the true historian of his times.

The most prominent architect of the Regency was John Nash, a man of daring enterprise and great capacity for town planning conceptions, but he was deficient in the elementary training of architecture. He was a man of great artistic ability in dealing with the improvement of towns; he gathered up the various models of the earlier schools and transposed them to suit his own problems. No other archi-

tect in the history of the Classic development achieved such brilliant success in the handling of masses of buildings as Nash, who attained unity of effect in his street architecture by the juxtaposition of structures dissimilar in composition. And if the original façades of Regent Street are examined it will be found that the resourcefulness of the architect in the latter regard is above question.

Nash does not appear to have paid much attention to detail; the proportioning and composing of buildings was his chief aim. Portland stone was out of the question on account of expense; as it was, Regent Street cost approximately 1½ millions sterling. The Gothic school, obsessed with the desire for pinacled silhouettes, was blind to the academic charm of Nash's distinctive work, and yelped to a man in a chorus of disapproval. What they would have made of the street one dreads to think. A study of Nash's work offers lessons in the composition of primary masses which should not be overlooked.

There exists no positive line of demarcation between the architecture of the Greek phase and that evolved by the coteries of the preceding school; the division, if it exists, is so slight as to defy analysis, and must perforce be regarded as wholly arbitrary. The beginnings of the purely Greek phase practically coincide with the stage when the Græco-Roman revealed its highest development. It resulted from a desire on the part of a few pedants to literally transplant the temple porticoes of Greece without attempting to adapt their form to modern problems. Many egregious mistakes followed, mainly arising from the endless repetition of the Greek Doric order attached to square boxes without appreciation of either form or utility. This at first sight seems a scathing indictment to prefer against the style, but it should be remembered that the Greek phase in its earlier moods was purely experimental and transitional to the more enduring neo-Greek and Italian reaction. The mistakes of the Greek phase have nothing in common with the successes, and it is to the latter that attention must be directed.

The chief exponents of Anglo-Greek architecture comprised William Wilkins, Sir Robert Smirke, Decimus Burton, Thomas Hamilton, John Papworth, William Henry Playfair, and numerous other architects practising in all parts of the kingdom. The duration of the style, as a distinct manner, lasted but twenty years; after that it loses its identity in the fuller renderings of such masters of style as Sir Charles Barry, Professor Cockerell, and Elmes; but the sequence of the neo-Classic traditions was continued unchecked.

TEMPORARY BUILDINGS IN RELATION TO BY-LAWS.*

By T. C. BARRALET, M.R. San.I.

THIS short paper deals with those structures the external walls of which are not constructed (to use the familiar language of the Model By-laws) of "brick, stone, or other hard and incombustible material."

The framers of the Model Series, issued in 1877, which still forms the basis of most of the regulations throughout the country, recognised the fact that certain exemptions were necessary, and expressly exempted such erections as plant-house, orchard-house, summer-house, poultry-house, or aviary, under somewhat hazy conditions. Now, most of us are not troubled about orchard-houses and aviaries, but the course of years has brought into existence a number of other excrescences which the well-meaning gentlemen of 1877 did not foresee. The bicycle brought the cycle-shed, amateur photography dark rooms, the motor-car private garages, while the open-air craze has brought out-door sleeping sheds. Many local authorities have tried to keep pace with these modern developments by extending the scope of the exemptions; but I do not know of one sufficiently up to date to contemplate air-craft sheds.

True, the old Model Series does make provision for buildings not being dwelling-houses which are detached, and at specified distances from other buildings or premises, and not exceeding a certain cubic capacity. Such are allowed if covered externally with galvanised or sheet iron. This admits of workshops, temporary churches, chapels, and mission-rooms, and, as we are aware, has been largely taken advantage of. The stipulation as to iron covering was doubtless inspired by the fact that no other incombustible material was then in the market, and has led to the architectural monstrosities in galvanised iron which

* A Paper read before the Institution of Municipal Engineers at their annual general meeting in London on November 7.

obtrude themselves even amidst the most rural surroundings.

Since the introduction of "Uralite" and similar incombustible sheets, which lend themselves to more architectural treatment, a number of local authorities have amended the regulations to admit of their use; but iron is generally rigidly insisted on. I have no brief for any of the alternative materials mentioned, but strongly hold the opinion that galvanised or sheet iron is a most unsuitable walling or roofing for any building, both on hygienic, architectural, and constructional grounds, and no by-laws should exist which enforce its use.

The complexity of modern life has brought into existence a class of buildings which, while not requiring the stability and durability of dwelling-houses, are sufficiently permanent to require something better than the usual timber studding, matchboarded within and lined with galvanised iron outside. Such erections as sports pavilions, club-rooms, and drill-halls are illustrative. If any part of such building is intended or adapted to be used either wholly or partly for human habitation, or as a place of habitual employment, in most districts it is not an exempted building, and the external walls have to be constructed in accordance with the by-laws.

It is well known that steel framing filled in with thin concrete or vitrified slabs is a far cheaper and more expeditious method of building such structures; yet the by-laws in force throughout the greater part of the country take no cognisance of this method of construction, though for the purposes named it is eminently suitable and satisfactory. A case in point has recently occurred in my own district, where it was desired to erect a golf pavilion and a club-room half a mile away from any other building. But for one fact it would have been an exempted building, and could have been built in the usual galvanised-iron style. That fact was that there were two caretakers' rooms, which it was held brought it within the by-laws. The architect was naturally averse to disfiguring the Surrey Hills by a hideous iron structure, and proposed steel framing filled in with "Frazzi" slabs. The by-laws did not admit of this, and there was a deadlock until the Gordian knot was cut by the building being licensed as temporary, with a liability on the part of the owner to remove it at six months' notice. As it was to cost £800, his hesitancy to sign such an agreement can be appreciated.

Fortunately the Local Government Board have now awakened to the fact that brick, stone, and monolithic concrete are not the last words in wall construction, and have adopted a series of model by-laws to meet such cases as that referred to.

The Public Health Acts Amendment Act of 1907, section 27, wisely recognises the inevitableness of temporary buildings, and gives to local authorities a wide discretion with respect to them. The Act, however, is an adoptive one, so that there are large areas in which it is not in force, and it would have been advantageous if it had contained a definition of the term "temporary," as it is somewhat a misnomer when applied to buildings that are intended to stand for more than a generation.

Perhaps, however, the temporary buildings which give the surveyor the most trouble are those which are obviously temporary little wooden shanties on vacant plots of ground, small workshops in the rear of cottages, antiquated tramway cars and omnibuses dumped in unsuspected places. Whether these come under the regulations or not is largely governed by what they were adapted or intended to be used for. If a cottager puts a superannuated omnibus in his back garden and calls it a summer-house, it is probably exempt, but if he uses it as a workshop it is contrary to the by-laws. From the fact that such things are put in back gardens, some time elapses before they come to the surveyor's notice, and if six months has elapsed he cannot take action under the by-laws.

It used generally to be thought that a building on wheels was under any circumstances exempt from building by-laws, and in my career many impositions of this nature have been attempted. If it were so, it would obviously defeat the objects of all reasonable building regulations, and it now appears to be accepted that wheels have no effect in determining whether a building comes within the by-laws or not.

The main objections to the type of flimsy temporary buildings under consideration are:—

- (1) Reduction of air-space in the rear of houses.
- (2) Danger from fire.
- (3) Unsightliness and untidiness.

The first and second can be met by making retrospective the by-laws requiring a clear space of 15 feet in the rear of all domestic buildings, as many authorities have done, and prohibiting all leans-to and sheds abutting on houses.

In many country districts the excrescences which in course of time grow up round a cottage often cover more space than the original structure. First, perhaps, a fuel shed is attached, followed by a greenhouse; then comes a nondescript structure, alleged to be a potting-shed, flanked by a chicken-run. An inspection a year or two after reveals a donkey kept in the fuel shed, the greenhouse transformed into a scullery, the potting-shed into a workshop, and the chicken-run serving as a lumber-room. For the purposes for which they were originally constructed such buildings as those described would probably be exempted from most building regulations, and the surveyor has little or no control over the uses to which they are subsequently put, until they become structurally dangerous.

Perhaps the best remedy for these unsightly temporary structures is the frank recognition on the part of builders and designers of small houses—especially those in country districts—that the average householder requires, in addition to rooms for living and sleeping, covered accommodation for such of his possessions as cannot reasonably be kept in a house. It is exceedingly rare to see a small house built with any accommodation for such every-day articles of use as perambulators, bicycles, garden tools, &c.; even a coal or wood shed is often conspicuous by its absence. It should be part of the design of every cottage that adequate provision of this kind should be made.

During last year I made an inspection of a number of cottages at Letchworth, and many of the tenants bitterly complained that the regulations of the estate did not permit of their erecting the usual ramshackle outbuildings to which they were accustomed, and that the builders did not provide any suitable substitute for them. In some of the newer type of cottages the need had been recognised, though to a very slight extent.

It would add very little to the cost of a cottage to provide at least 100 square feet of covered space in a safe vicinity, and thus remove the temptation tenants are always under to disfigure their premises with hideous and insanitary surroundings. It is generally the more satisfactory class of tenants with harmless hobbies who indulge in this sort of thing, and these are frequently in a state of veiled hostility to building regulations, under the impression that they are made for their special harassment.

On the whole, therefore, it would seem desirable to frame by-laws in such a manner as to admit, and even encourage, the building of dwellings of appurtenances which conduce to the comfort and convenience of the occupier, provided it can be done without detriment to health or undue damage from fire.

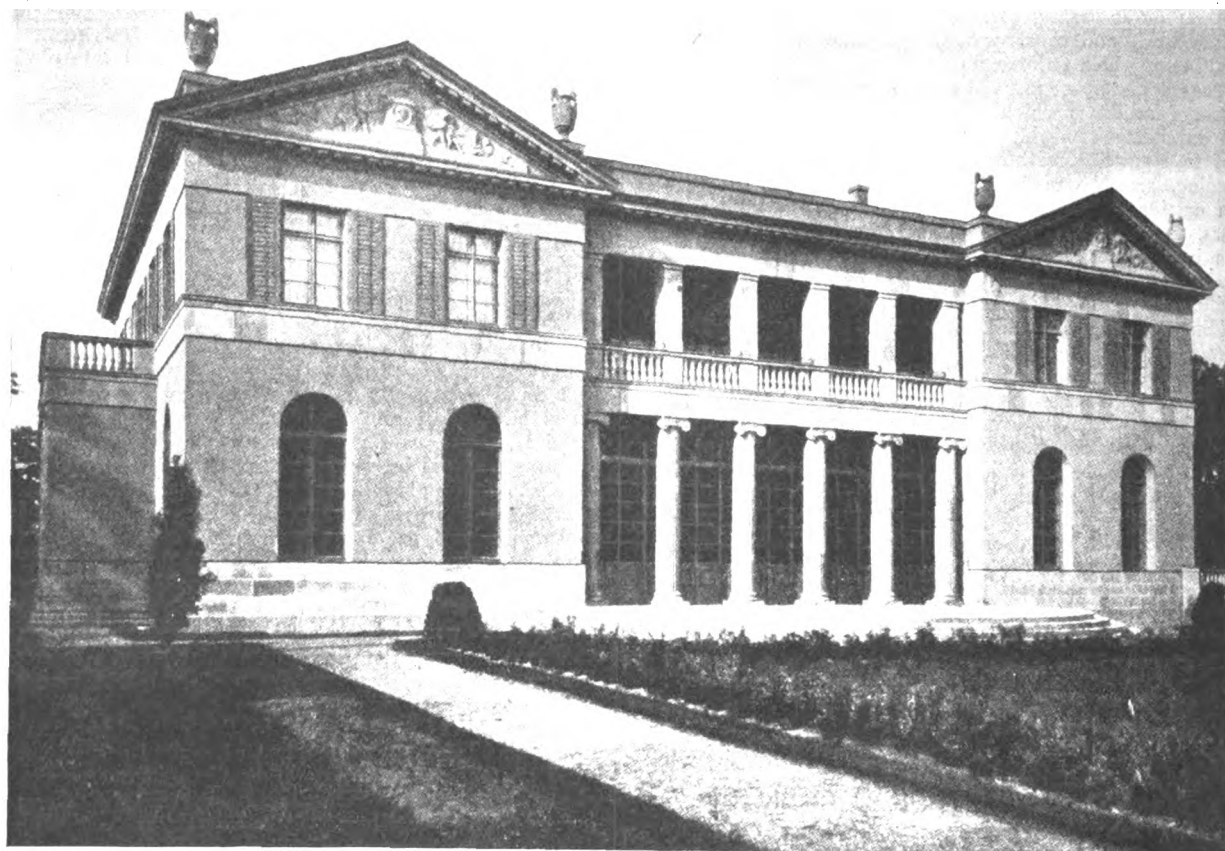
Previous to the Act of 1907, many local authorities, to meet apparent cases of hardship, had accepted the plan of yearly licences for buildings which did not comply with the requirements of the by-laws as to structure and thickness of external walls, with the condition attached that the building should be removed by the owner after a specified notice from the local authority. This is open to the objection that a local authority have no legal dispensing power in the matter of building regulations, and, further, that there is a grave doubt as to whether the conditions made under any such agreement could be enforced. It would be of interest to know if any member of the Institution could instance such powers being enforced in the case where a building, admittedly contrary to by-laws, had been allowed.

SOME PROBLEMS IN DAYLIGHT ILLUMINATION, WITH SPECIAL REFERENCE TO SCHOOL PLANNING.*

By PERCY J. WALDRAM, F.S.I.

It would at first sight appear to be improbable at this stage of scientific investigation that anything new or interesting could be said with regard to such a subject as daylight illumination, which is so vitally necessary to our existence. Still less would one expect it to present difficult problems materially affecting large monetary considerations, or to find many of those problems habitually solved, by those who are

* Abstract of a Paper read at a meeting of the Illuminating Engineering Society held at the House of the Royal Society of Arts, John Street, Adelphi, London, W.C., on December 16.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.

HOUSE IN THE GRUNEWALD SUBURB, BERLIN.—Herr ADOLF WOLLENBERG, Architect. [From *Moderne Bauformen*.]

professionally engaged to do so, only by the most random guesswork, rendered still more uncertain by ignorance of facts which might be ascertained by ordinary observation.

Yet such is actually the case. This paper is presented with no little diffidence, not because the subject is barren of interest, but rather because the writer appreciates the difficulty of adequately presenting its vast potentialities as a field of research; indeed, the author is conscious of the great difficulty of doing justice to the complexity of the subject.

The correct solutions of daylight problems affect such large sums, both of capital expenditure on buildings and of annual expenditure on heating, rental value, dead rent of light wells, &c., that one cannot help feeling considerable apprehension in even indicating what appear to be suitable lines of investigation.

The illumination of buildings by natural light, as obtained by forming openings in the walls and ceilings of rooms, is an operation which so materially influences the structure and the subsequent utility and value of all buildings, to say nothing of the architectural and other amenities, that one is rather staggered to find that practically no rules exist which determine what width, height, and arrangement of glass area will afford adequate illumination for any given size of room.

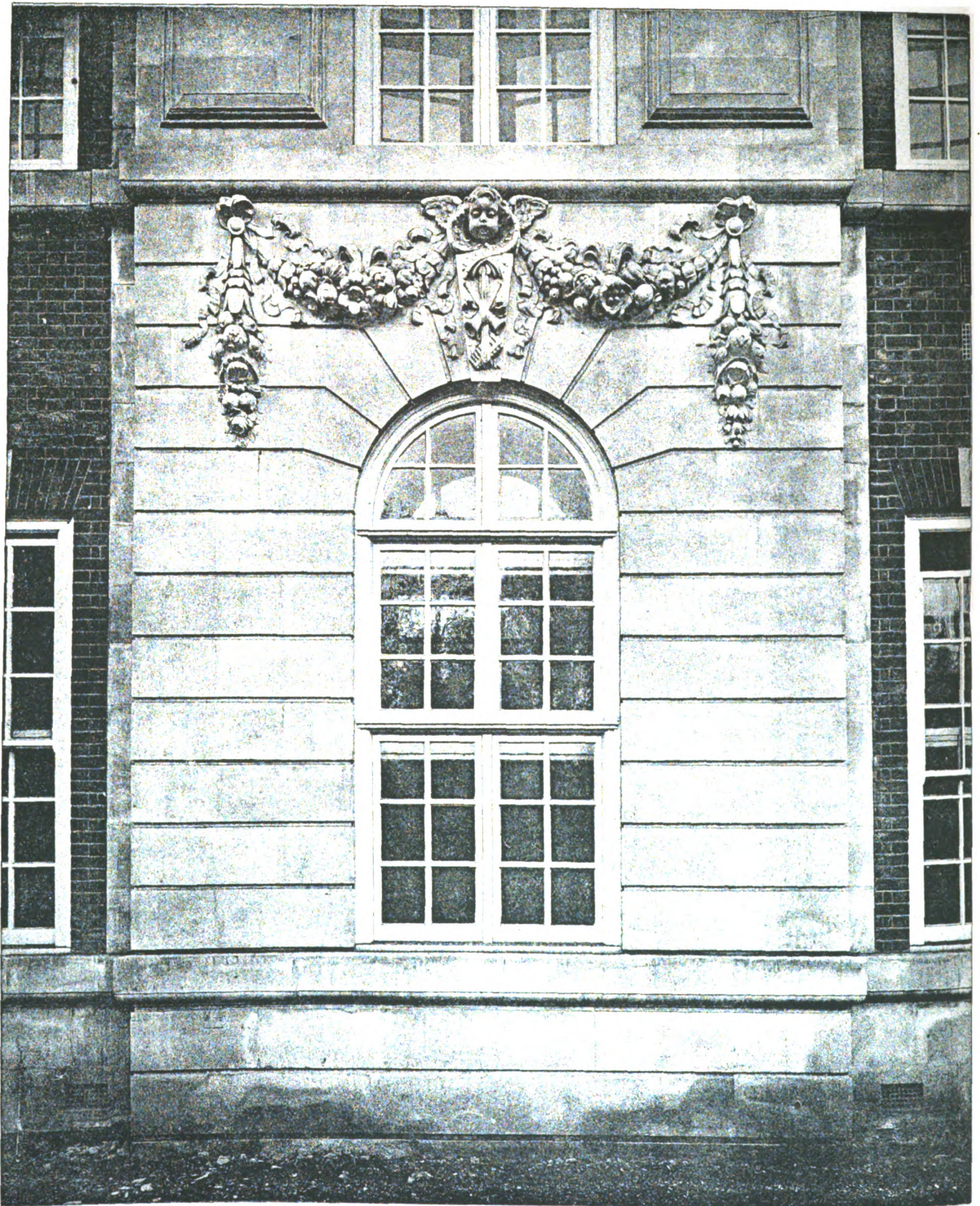
By means of vertical windows we admit to our rooms a small (an extremely small) proportion of the illumination enjoyed outdoors, but what that proportion should be for any specific purpose has yet to be defined. When we come to consider the matter we find that the daylight source varies from month to month and from hour to hour on normal days by several hundreds per cent., while on many days it will vary by 50 per cent. to 100 per cent. in the course of a few minutes.

The extent of these variations in changeable weather is really far greater than is commonly supposed. This fact alone makes the measurement of the ratio of the outside

light which is enjoyed by any room a difficult task, even with accurate and handy measuring instruments—except on light, grey days, when the sky is of equal and approximately permanent brilliance for considerable periods of time. When, in addition, we consider the idiosyncrasies of the unaided human eye, it will be seen that its estimates of natural illumination are liable to vary enormously without the estimator being even aware of his errors. Herein lies the explanation of the curious anomaly that in ancient light cases the most absolutely contradictory evidence may be given in perfect good faith by different experts of equal skill, whose integrity is above suspicion, and who may be quite capable of fairly appraising the effect of all other matters tending to modify the value of real estate, and of tracing such effects amongst the ramifications of underleases and subsidiary interests.

It is simply because experts trust to the impressions received by their unaided eyes; in ignorance of the fact that isolated impressions cannot be taken as even rough criteria of average conditions over long periods; and that the eye as a measuring instrument is so hopelessly inaccurate that to depend upon it for estimating natural illumination can only be compared with an attempt to locate the points of the compass by observing the direction and temperature of the wind.

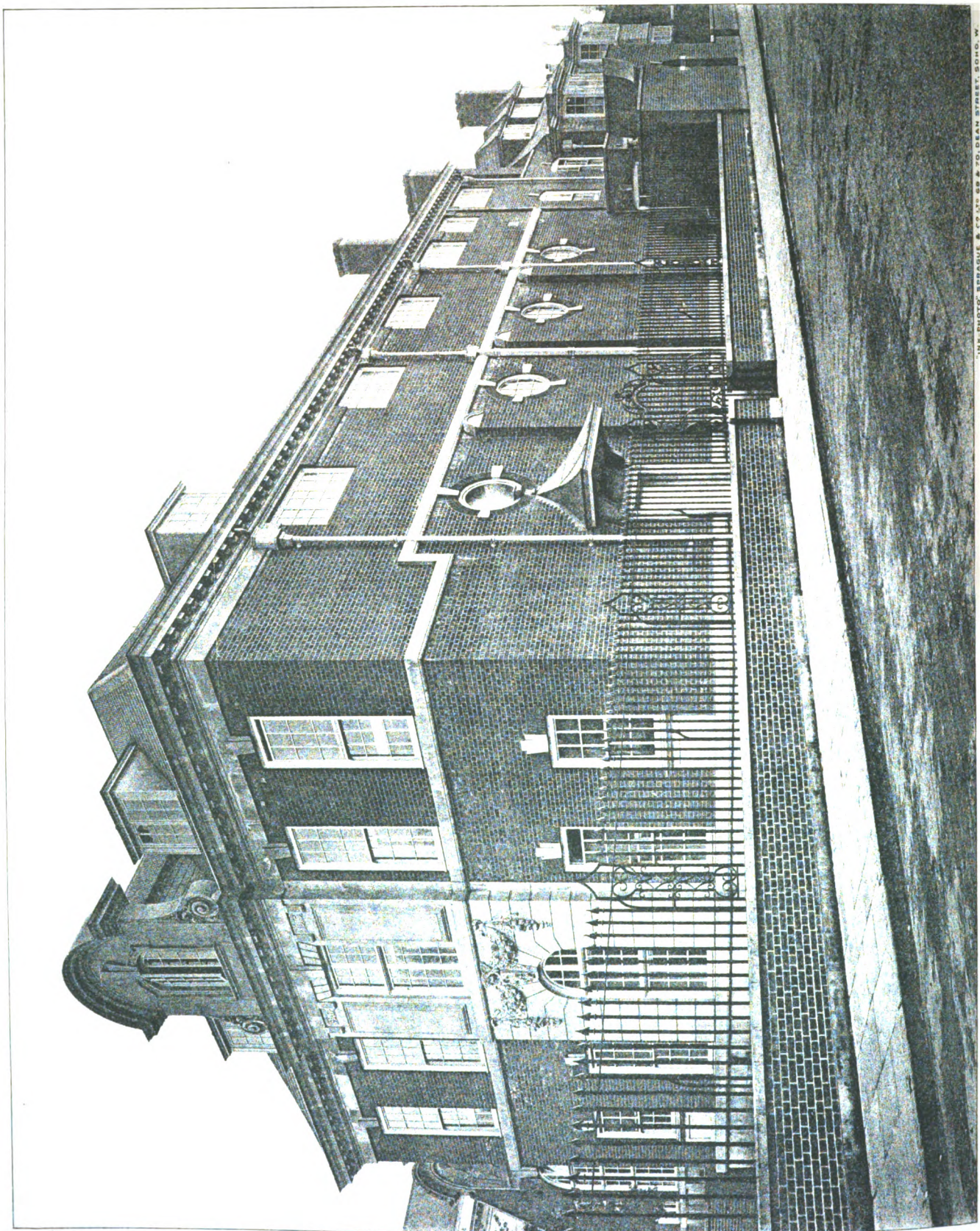
It is also necessary to appreciate some other little-known peculiarities of the human eye. Although its measuring ability is poor in the presence of artificial light, it is infinitely less capable of appreciating variations of daylight. After some experience we can, by exercising due care, estimate the amount of artificial illumination falling upon a white card with a matt surface to within perhaps one or two foot-candles, and excessive artificial illumination on such a source, say 10 to 15 foot-candles, causes us acute discomfort. But few people would be conscious of any material difference in illumination if they passed from an ordinary interior into the open, even though while doing so they kept their eyes



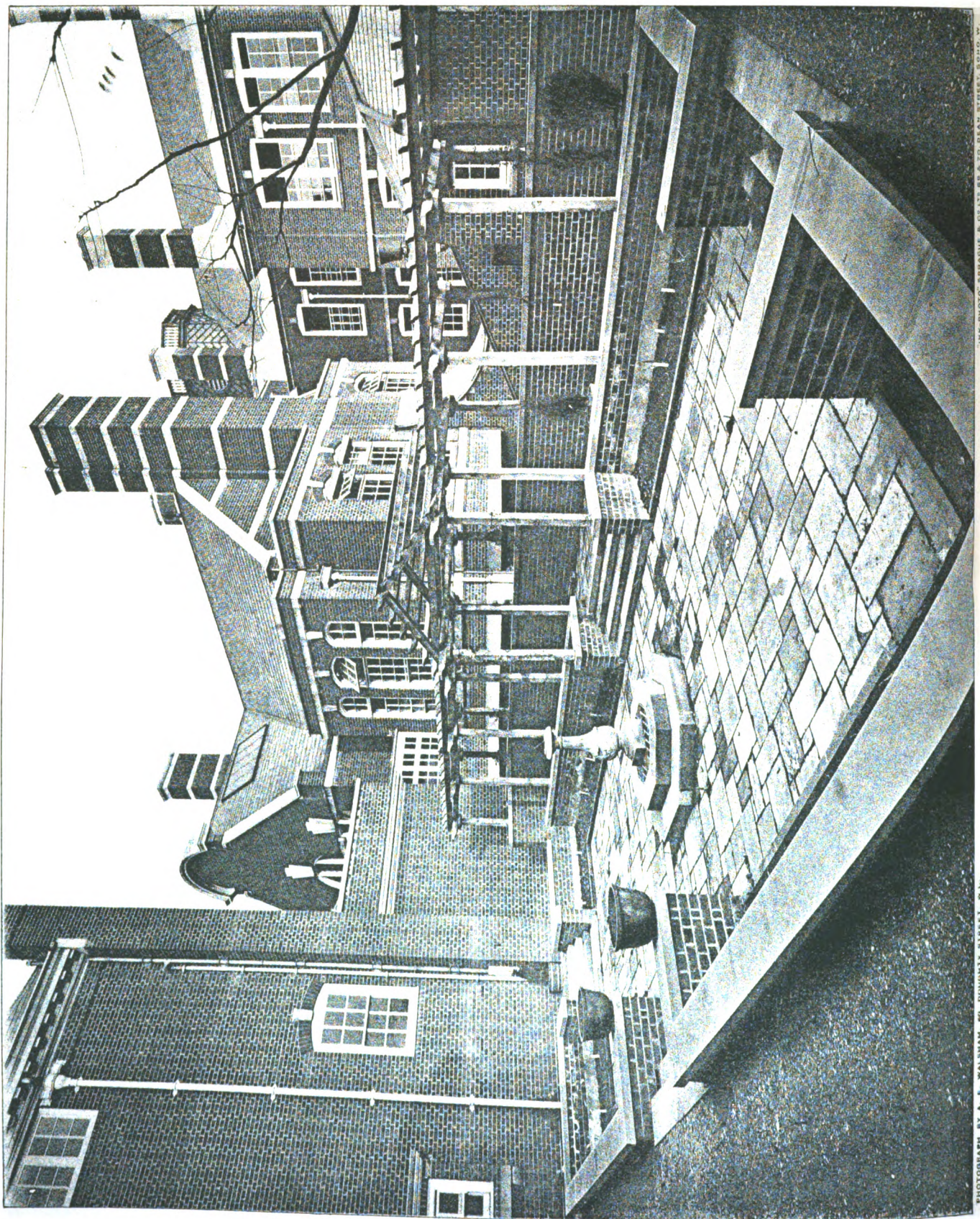
PHOTOGRAPH BY A. E. WALSHAM, 60, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD 69 & 70, DEAN STREET, SOHO, W.

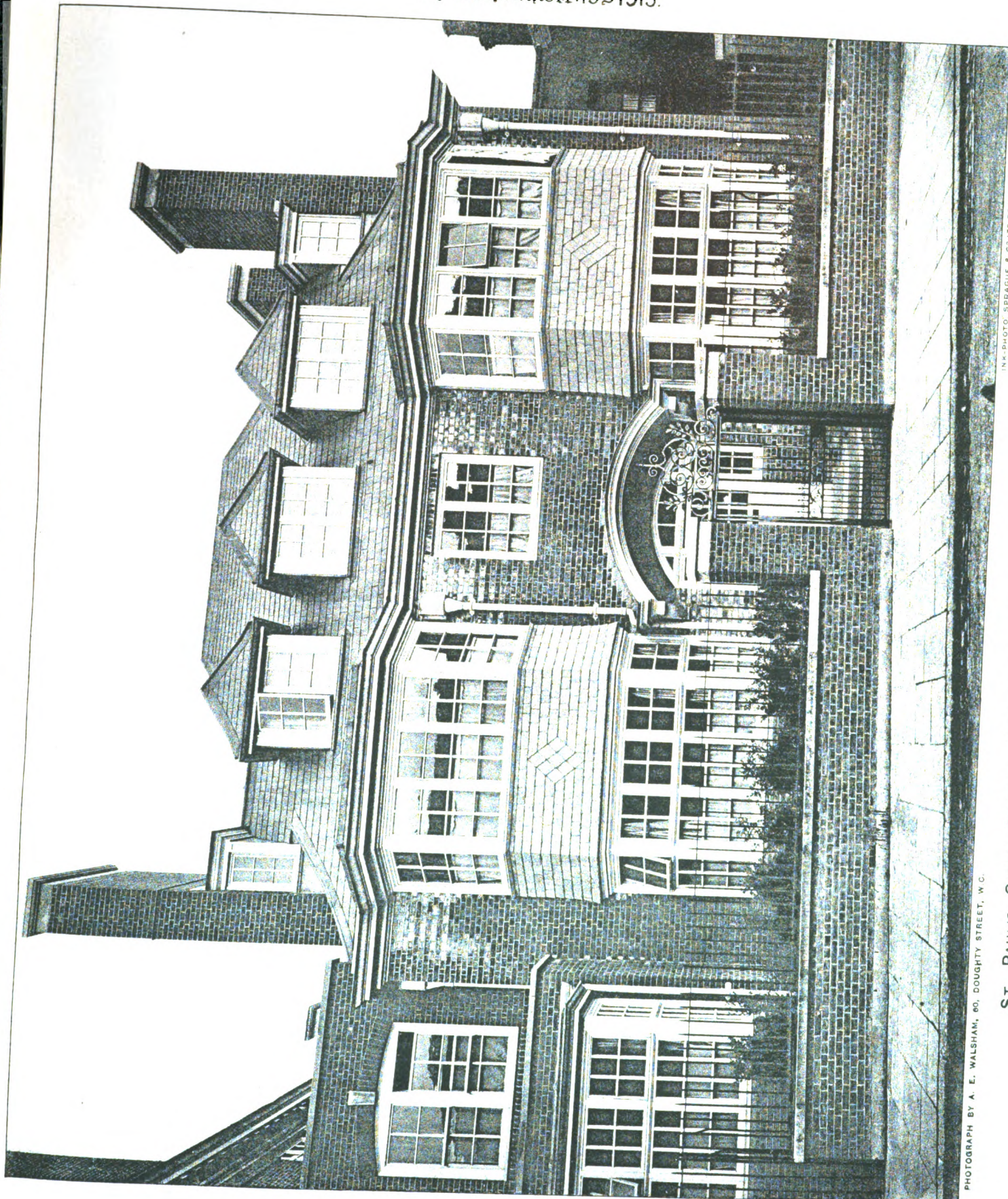
ST. PAUL'S GIRLS' SCHOOL. NEW MUSIC SCHOOL: DETAIL OF CENTRE OF FRONT ELEVATION.
Messrs. GERALD C. HORSLEY, F.R.I.B.A., & DENDY WATNEY, Architects.



PHOTOGRAPH BY A. E. WALSHAM, 80, DOUGHTY STREET, W.C.
ST. PAUL'S GIRLS' SCHOOL, NEW MUSIC SCHOOL, GENERAL VIEW
THE PHOTOGRAPH BY A. E. WALSHAM, 80, DOUGHTY STREET, W.C.



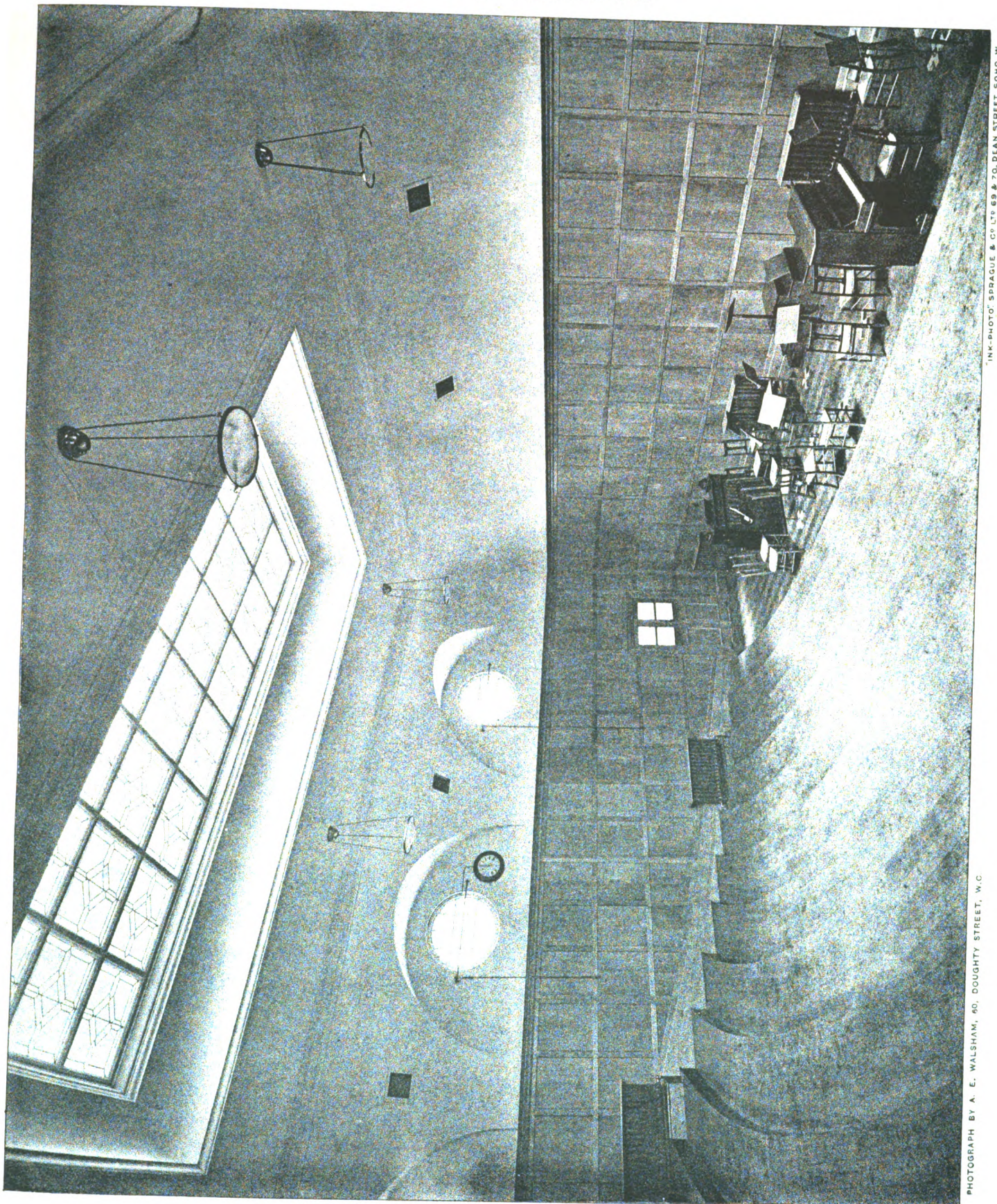
PHOTOGRAPH BY A. E. WALSHAM, 80, DOWRY STREET, W.C. ST. PAUL'S GIRLS' SCHOOL, NEW MUSIC SCHOOL, GARDEN AT HIGH, MISTYERS HOUSE



PHOTOGRAPH BY A. E. WALSHAM, 80, DOUGHTY STREET, W.C.

ST. PAUL'S GIRLS' SCHOOL NEW MUSIC SCHOOL: THE HIGH MISTRESS'S HOUSE.
Messrs. GERALD C. HORSLEY, F.R.I.B.A., & DENDY WATNEY, Architects.

INK-PHOTO SPRAGUE & CO. LTD. 89 & 70, DEAN STREET, SOHO, W.



PHOTOGRAPH BY A. E. WALSHAM, 40, DOUGHTY STREET, W.C.

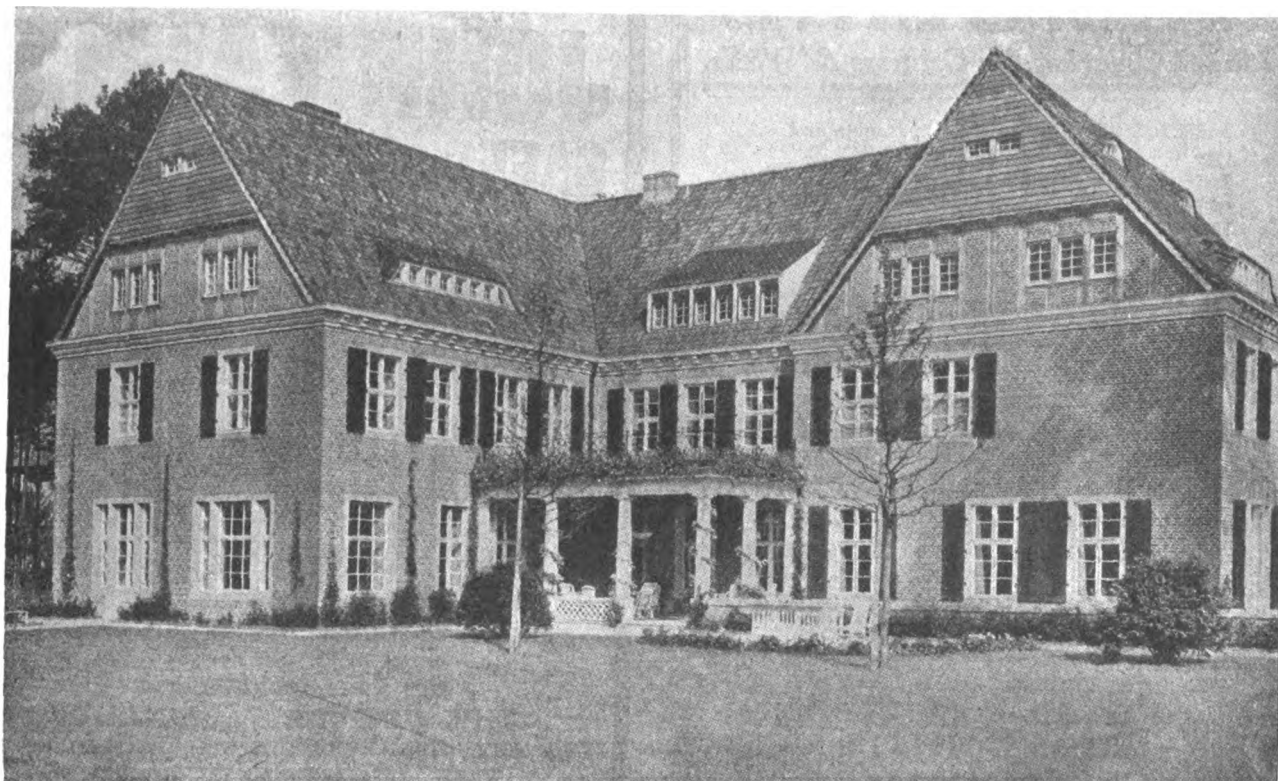
ST. PAUL'S GIRLS' SCHOOL NEW MUSIC SCHOOL: INTERIOR OF SINGING HALL.
Messrs. GERALD C. HORSLEY, F.R.I.B.A., & DENDY WATNEY, Architects



PHOTOGRAPH BY A. E. WALSHAM, 80, DOUGHTY STREET, W.C.

INK PHOTO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

ST. PAUL'S GIRLS' SCHOOL. NEW MUSIC SCHOOL: DETAIL OF DOORS TO PRACTICE ROOMS.
Messrs. GERALD C. HORSLEY, F.R.I.B.A., & DENDY WATNEY, Architects.

MODERN EUROPEAN ARCHITECTURE.
GERMANY.

COUNTRY HOUSE AT DAHLEM, NEAR BERLIN.—Herr O. BARTNING, Architect.

[From *Moderne Bauformen*.]

fixed upon a white matt card or a piece of ordinary printed paper. Yet whilst inside the illumination might be considered of quite average and adequate strength, outside it would be—not 10 or 50 per cent. stronger—but probably a thousand to two thousand times as strong. To our eyes it appears a little stronger, an impression which is, perhaps, subconsciously accentuated by the fact that we naturally expect it to be so; but a ratio of a thousand to two thousand to one seems absurd, until we try it with a photometer or attempt to photograph in the two positions with the same stop.

A thousand foot-candles of daylight or sunlight is less trying to our eyes than 10 foot-candles of artificial light. This is possibly due to the fact that we have only been accustomed to the use of the latter for, say, 150 years or so—a period which is extremely minute in comparison with the countless ages through which our eyes have developed under natural light.

There are many counts in the indictment which one must draw up against the eye as a measuring instrument of daylight.

When man had to trust mainly to his eyes and wits against the attacks of wild animals, anything which obstructed the view was obnoxious, and an unobstructed aspect was invaluable; whether we are still so influenced or not, people will certainly often stand up in the middle of an empty room and judge of its daylight illumination for reading, writing, and working by the view from the windows and their size, taking no note at all of the height of the window heads in relation to the depth of the room. There are also still architects who will compress a glass area of one-tenth of the floor space into low, broad windows and expect them to light a deep room.

The eyes of many people also are particularly susceptible to colour, and if the walls of a room be covered with a white paper with a light pink pattern, the eye, noting their cheerful lightness, will pronounce the room a light one whether it really be so or not. On the other hand, if the walls be dull grey or brown, as in the Court Rooms of the Royal Courts of Justice, one is obsessed by their sombre gloom and will find it most difficult to avoid the conclusion that the Courts are dull and badly lit, even though by virtue of their high windows or lantern lights they may really enjoy a degree of illumination for reading and writing such as is received by very few ordinary rooms, and may be able to dispense with artificial light on a winter

afternoon for a considerably longer period than would be possible in a room lit with windows of the ordinary height.

Blue sky gives us very little of that diffused light upon which all interiors must depend when they are not receiving the sun's rays, direct or directly reflected. White or very light grey clouds, in fact, materially increase the illumination of interiors. The very commonly held supposition that the contrary is the case is often bolstered up by the tests of the length of time required to darken photographic paper, which, however, is unduly sensitive to the rays of light from blue sky.

The only accurate practical method we have at present of measuring illumination readily by a single observation is to utilise the ability of the eye to judge the relative brightness of two small similar surfaces receiving low degrees of illumination, one of which slowly varies in brightness, and to determine the point at which they are equally bright. This is, of course, merely the science of photometry, which has been brought to a considerable degree of perfection during the last few years with regard to the exact measurement of light sources, of the illumination they produce, and of natural illumination.

The problems of daylight illumination have been studied to some extent and those which await solution can be defined. An attempt is made herein to marshal them for consideration, to indicate what has been already done towards their solution, to define certain data which is still required, and to suggest some practical means of obtaining it.

The main problems of daylight illumination may be briefly stated as follows:—

(1) What is the minimum natural illumination at which artificial light becomes preferable?

(2) What are the conditions of minimum sky brightness under which such minimum inside illumination ought to be obtained, or, in other words, what is the minimum ratio which the inside light should reasonably be expected to bear to the outside?

(3) What are the relative lighting values under various conditions of a square foot of window glass situated at different positions in the wall or ceiling of a given room and with various degrees of obstruction of the total sky hemisphere by surrounding buildings?

(4) For properly lighting a given point in a room, such as a desk by the wall furthest from the window, what is the minimum angle which the top of the glass should

"PRIMOLINE"

The Ideal Covering for Ceilings & Walls.

Avoid Imitations which give you trouble and cost more, and insist on "PRIMOLINE."

It is sufficient guarantee of the genuineness of "Primoline" to know that it is manufactured by Mr. W. L. GREEN, who first brought out the Gelatinous Whites and introduced them to the trade in 1905.

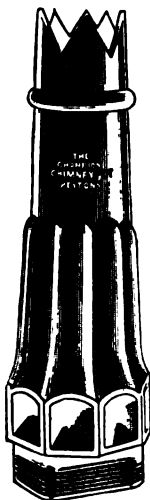
Write for Prices and Samples to

THE PRIMOLINE WHITE CO.

Phone 1173 Ealing.

THE HAM, BRENTFORD, W.

SOLD BY ALL BUILDERS' MERCHANTS.



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

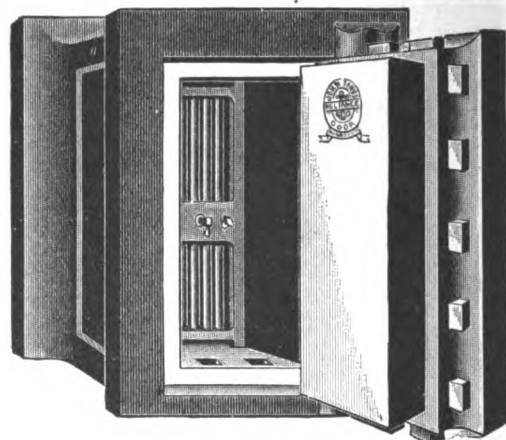
Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.

ESTABLISHED 1795

FOR SECURITY AND VALUE

ARCHITECTS SHOULD SPECIFY

JOHN TANN'S SAFES & STRONG-ROOMS



THE FIRM WHICH OFFERS

THE GREATEST SECURITY

FOR ANY GIVEN EXPENDITURE, BACKED UP BY

THE HIGHEST RECORD—

118 Years without a single failure against either FIRE or BURGLARS.

Catalogues and Estimates from

JOHN TANN, Ltd.
117 NEWGATE ST., LONDON.

PEN-YR-ORSEDD

SLATE QUARRY CO., Ltd.,

Supply Best and Seconds Red and Purple

SLATES

Apply to the Manager,
Pen-yr-Orsedd Office, Carnarvon.

TO MERCHANTS AND THE TRADE.

CABOT'S SHEATHING AND SOUND-DEADENING QUILT

PREVENTS THE TRANSMISSION OF SOUND through walls and floors by absorbing and breaking up the sound waves. No other deafener does this.

KEEPS OUT HEAT OR COLD exactly as do the feathers of a bird; providing innumerable minute dead-air spaces, giving highest insulating power. Will save enough fuel in a single Winter to pay for itself. Keeps a room warm in Winter, cool in Summer. DECAY, MOTH, AND VERMIN PROOF, AND NON-FLAMMABLE.

Scientific investigation has proved that for HEAT INSULATION or SOUND DEADENING the highest degree of efficiency, with economy in cost and extreme durability, has been attained by CABOT'S QUILT.

PRICE LIST.

Single-ply - £0 17 8 per Roll.	Triple-ply - £1 8 0 per Roll.
Double-ply £1 2 0 "	Asbestos-covered £1 12 8 "

F.O.R. Twickenham.

Each Roll contains a piece 28 yds. long and 1 yd. wide, or 250 sq. ft.

WEIGHTS PER ROLL.

Single-ply - 40 lbs.	Triple-ply - 90 lbs.
Double-ply - 65 lbs.	Asbestos-covered - 90 lbs.

Always specify whether Single, Double, Triple-ply, or Asbestos-covered is wanted.

ARTHUR L. GIBSON & COMPANY

Radnor Works, Strawberry Vale, TWICKENHAM.

GLASGOW:—79 West Regent Street.

MANCHESTER:—33 Arcade Chambers, St. Mary's Gate.

make with the horizontal at that point; or, what height of window head is essential if the back of a room of given depth should be reasonably well lighted with given degrees of obstruction by surrounding buildings?

(5) For lighting a given point in a room, what is the minimum horizontal angle of window glass which should be subtended at that point; or what width and distribution of window glass is essential in a room of given width with given degrees of obstruction by surrounding buildings?

(6) To what extent in each case is the illumination affected by the colour of walls and ceilings?

Before considering these questions either in general or in detail, it is necessary to clearly appreciate that a correct solution in one case of daylight illumination will not necessarily be correct in another, on account of different considerations whose relative importance vary in different cases. The best illumination for reading, writing, drawing, and the majority of handicrafts is determined by the physiological fact that our eyes during such operations only take in rays of light which are reflected back from the object viewed, within angles of about 10° or so from the vertical; and we only see an object by means of the light reflected back from it into our eyes, which is not necessarily by any means all the light falling on to it, or even a large proportion of such light. For the purposes named, low angle light is of minor importance, whereas for other purposes, such as the illumination of wall diagrams and blackboards in a schoolroom, it may be invaluable. Again, a drawing office, a law court, or an operating theatre in a hospital might receive the most perfect illumination from a large lantern light which would be all but intolerable, say, in the wards of the same hospital. In a schoolroom the high angle light which is essential for reading and writing has a most cheerless and depressing effect when it is the sole source of illumination; and supplementary lighting by window glass at a lower angle, inefficient and uneconomical as it seems as a lighting agent, has a beneficial effect on the minds of scholars which is of no small educational importance. Schoolroom windows which exclude the high angle midsummer sun, whilst admitting what there is of low angle winter sun, must not necessarily be wholly despised by school architects on account of their poor return in desk illumination; and a patient would probably recover more readily in a hospital ward with comparatively low window sills admitting the early-morning and late-afternoon sun than in one which merely gives an excellent vertical illumination to the doctors and nurses. For some purposes a strong and perfectly diffused illumination must be secured at all costs; for other purposes the same perfection of diffusion would be most undesirable.

A laundry may be best lit by a strong high angle light accentuated by white walls and ceilings, whilst in a needle room the eye absolutely requires the relief and recuperating effect of soft, subdued wall tints, which may possibly discount the illumination to a material extent.

Again, breadth of aspect which might decidedly enhance the rental value of a dwelling room would probably be only distracting in a court of law.

In every case we must weigh the relative importance of factors whose requirements may be different and even contradictory. So that even, when we are in a position to determine what size and arrangement of window glass and what minimum obstruction of sky area gives us the best illumination for a given purpose, we must still beware of pursuing ideals too far; and we must apply the touchstone of economic and structural commonsense as we do in every other building problem. A parabolic lattice girder may be the most economical weight carrier; but it is poor economy to save, say, 15 per cent. of rolled steel joists costing 10s. per cwt. by adopting lattice girders at 20s. per cwt. It is precisely the same with lighting problems. In designing a block of offices an improvement in the lighting which might increase the rental value of the lower floors by a problematical 5 per cent. or 10 per cent. would be dearly purchased by enlarging the interior light wells to an extent equal to 25 per cent. of the cubical contents of building otherwise available. It might appeal to our altruistic ideals of good lighting, but our client in the next building would probably cut down his light wells to an excessive degree.

(To be concluded.)

THE Woking Urban District Council are considering a scheme prepared by Mr. Midgley Taylor, consulting engineer, for sewage disposal works at a cost of £15,000.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Beaconsfield.—Proposed Baptist Church, Barring Road.

Charndon.—Public Elementary School for 96 places.

Gawcott (near).—Isolation hospital.

Stony Stratford.—Council School: additional 120 places.

CUMBERLAND.

Carlisle.—Ladies' swimming bath (£2,000). Borough engineer.

West Silloth.—Forty-eight houses for employees at Messrs. Carr's Flour Mills, Ltd. Mr. G. Armstrong, architect, 24 Bank Street, Carlisle.

DERBYSHIRE.

Dronfield.—Council School: extension. Mr. G. H. Widows, A.R.I.B.A., architect, County Offices, St. Mary's Gate, Derby.

DEVON.

Dartmouth.—Elementary School for 352 places. County Education Architect, 1 Richmond Road, Exeter.

Lydford (near).—Bungalow. Mr. E. Wise, architect, Westgate, Launceston.

DURHAM.

Gateshead.—Workhouse children's wards: alterations. Messrs. Newcombe & Newcombe, R.I.B.A., architects, 89 Pilgrim Street, Newcastle-upon-Tyne.

Wheatley Hill.—Premises for the Co-operative Society.

Mr. J. W. Hays (of Wingate), architect.

Willington.—Six houses, for Mr. Thomas Dunn.

HAMPSHIRE.

Bournemouth.—Malmesbury Park Schools: extensions. Borough architect.

Portsmouth.—Infections diseases hospital: extension for 84 beds, nurses' block, &c. (£28,000).

KENT.

Beckenham.—County School.

Broadstairs, East Farleigh, and Queenborough.—Council Schools.

Marsh Green.—Proposed Church.

Minster (Sheppey).—Council School: half-way houses enlargement, &c.

Queenborough.—See above.

Sandgate.—Lady Chichester Club.

Tonbridge.—Council School, Sussex Road: cleansing station and clinic (£500).

LANCASHIRE.

Bolton.—Church and classrooms, St. Helen's Road, Hul-ton, for Messrs. H. Harper & Son.

Houses, Florence Avenue, Astley Bridge, for Mr. P. W. Emery.

Twenty houses, Lingholm Avenue, for Mr. J. Bramhall.

House, Junction Road, for Mr. H. Leach.

Thirteen pairs of houses, off Whitcroft Road, Heaton. Mr. H. Haywood, builder, 21 Church Street.

Seven houses, Fern Street, for Mr. J. Higson.

Vicarage, St. George the Martyr's, Willows Lane: alterations. Mr. E. J. Scaife, A.R.I.B.A., architect, 21 Mawdsley Street.

Works, High Street: proposed addition for Messrs. Grimshaw & Peers.

Brightmet.—St. James' Church: proposed parochial buildings.

Seven houses, Bury Road, for Mr. F. Draper.

Wallasey.—Fire Station (£5,900).

LEICESTERSHIRE.

Coalville.—Tuberculosis dispensary, Bakewell Street, for the County Council.

Leicester.—Church of the Holy Apostles (£5,000). Messrs. Everard, Son & Pick, F.F.R.I.B.A., architects, 6 Millstone Lane.

Lutterworth.—Thirty working-class houses, Crescent Road (£5,200).

Markfield.—Twelve working-class houses.

Snibstone.—Church (£1,200). Messrs. Stockdale Harrison & Sons, architects, 7 St. Martin's East, Leicester.

South Wigston.—St. Thomas' Church: Sunday schools (£500).



WITCHELL & CO.,
Specialists in
Wrought Iron and Art Metal Work,
555 LUDGATE HILL, LONDON, E.C.
(and Endwell Works, Brockley, S.E.)

... THE ...
British Traders' Association.

For the Protection of the Building and Hardware Trades.
Managers: GORFIELD & CRIPWELL,
119 Finsbury Pavement, LONDON, E.C.;
12 Cherry Street, BIRMINGHAM.

A subscription of £1 ls. per annum entitles the Member to 10 Status Reports, to the Collection of 10 Accounts in England and Wales, free of Commission, and to any registered information on the books. Continuous Reports a Speciality. Weekly Gazette issued. Membership limited to Wholesale Firms.

STATUS INQUIRIES, DEBT RECOVERY,
INVESTIGATIONS AND INSOLVENCY DEPARTMENTS.

CHRISTIE PATENT STONE
CO., LTD.

DRESSINGS, STAIRS, LANDINGS.

Works: Christie Rd., Stretford, Manchester.
Bournemouth Street, Hull.

Broseley Tile Firms.

BROSELEY
ROOFING TILES

Machine-made & Hand-made Sand-faced
Old Broseley Colours.

PRESTAGE & CO.,
BROSELEY, SHROPSHIRE.

ROOFING TILES.
EXCELSIOR BROSELEY

In Red and Brindled Artistic Shades.

W. & P. JONES,
JACKFIELD, SALOP.

BROSELEY ROOFING TILES

FOR
Durability and Appearance.

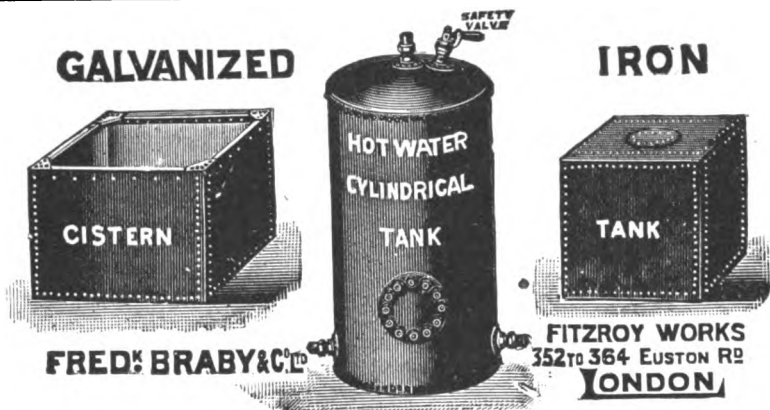
C. R. JONES & SONS LTD
Ladywood Works, JACKFIELD, Salop.

RED CROSS
Colourless Stone Solution

Cures DAMP and ARRESTS DECAY.
Price 6/- per gallon; same as used at the new
building at the Royal Infirmary, Glasgow. &c.

Made by the
STANDARD CHEMICAL CO., GLASGOW.

The original introducers of the Hot Water
Cylindrical Tanks.



The original introducers of the Hot Water
Cylindrical Tanks.

Illustrated Sheet, showing application of our Hot Water Cylindrical Tanks, sent on request.

DU RESCO

THE KING OF WATER PAINTS.

The FIRST in the Field. The FOREMOST ever since

THE SILICATE PAINT CO.

Made and sold a Water Paint in 1875.

30 Years Experience has stamped

DU RESCO

as being the premier Water Paint.

SOLE MANUFACTURERS—

THE SILICATE PAINT CO.,

J. B. ORR & CO., Ltd.,
CHARLTON, LONDON, S.E.

ENGLAND—continued.

LINCOLNSHIRE.

Grimsby.—The Cliff Hotel: alterations and improvements, for Messrs. Hewitt Brothers, Ltd.

Lincoln.—Two houses, Kingsway, for Mr. W. F. Berry. Shop, High Street and St. Benedict Square: additions and alterations, for the Public Benefit Boot Co.

Corn warehouse and additions to mill, Waterside North, for Lincoln Co-operative Society.

MIDDLESEX.

Kingston-on-Thames.—Wesleyan Methodist Lecture Hall and improvements to Sunday school (£1,600).

Willesden.—German (Döcker) School (£2,550).

MONMOUTHSHIRE.

Newport.—St. Julian's Church: proposed new building.

NORTHAMPTONSHIRE.

Northampton.—(Supplementary to 5th inst.)—Doddridge Memorial Sunday schools, St. James' End; also church extensions (£5,000). Mr. F. H. Allen, A.R.I.B.A., architect, 6 Mercer's Row. Mr. A. P. Hawtin, contractor, 102 Colwyn Road.

Rushden.—Thirty-two Council cottages.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Crippled Children's Home, Gosforth: extension (£2,500).

OXFORDSHIRE.

Henley-on-Thames.—Royal Grammar School: enlargement and improvement (£3,500).

SOMERSET.

Bath.—Weights and Measures Office, James Street. Secondary School.

Drayton.—Vicarage (£1,500).

STAFFORDSHIRE.

Burton-on-Trent.—Gasworks, Westmoor Road: retort-house extension (£20,000).

Workhouse: homes for boys and girls.

Cannock.—One hundred workmen's dwellings.

Stafford.—Proposed music-hall.

Forty working-class dwellings.

Wednesbury.—Darlaston Parish Church day schools: enlargement (£6,000).

Wolverhampton.—Catholic schools, corner of Steelhouse Lane and All Saints' Road (£6,600).

SURREY.

Mortlake.—All Saints Church (£7,000). Sir A. Blomfield & Sons, F.F.R.I.B.A., architects, 6 Montagu Place, London, W.

SUSSEX.

Brighton.—Headquarters, North Street, for the Territorial Cyclists' Battalion.

Littlehampton.—Fire Station.

Worthing.—Twenty houses, King Edward Avenue. Messrs. F. Sandell & Sons, builders, Railway Approach. House, Rowlands Road. Mr. B. J. Blaker, builder, Crescent Road.

Two houses, Navarino Road, for Mr. F. J. Merry.

Five houses, Wordsworth Road. Messrs. Singer Hyde & Sons, architects, 23 Eriswell Road.

WARWICKSHIRE.

Coventry.—104 municipal houses, Narrow Lane.

Warwick.—The Pageant House: reconstruction for Town Council.

WILTSHIRE.

Trowbridge.—County Asylum: extension. Mr. J. G. Powell, County surveyor.

WORCESTERSHIRE.

Bretforton.—Twenty cottages, for Evesham R.D.C.

Bromsgrove.—C. of E. schools: reconstruction for 320 places (£1,400).

Littleton.—Twenty-four cottages, for Evesham R.D.C.

Selly Oak.—West Hill Training Institute: hostel and schools (£10,000). Messrs. Harvey & Wicks, architects, 5 Bennett's Hill, Birmingham.

Worcester.—County buildings (£12,500).

YORKSHIRE.

Darnall.—Wesleyan Church.

Haigh.—Institute. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

Pickering.—Buildings for the Co-operative Stores.

Sheffield.—Baths, Attercliffe: additions and alterations (£3,000).

Central Laundry, Penistone Road. City architect.

Wesleyan Chapel, Woodseats.

Wesleyan Methodist Mission Hall, Attercliffe.

Southbank.—Court House. Mr. W. H. Brierly, F.R.I.B.A., architect, 13 Lendal, York.

Thirsk.—Cinema Hall, Long Street, for Mr. J. Bell.

Whitby.—Café and assembly rooms, Baxtergate. Mr. H. G. Walker, architect, Gaskins Chambers.

WALES.

Llanfihangel Gneu'r-glyn.—House. Messrs. Deakin & Howard-Jones, architects, Plas Ynys, Borth, R.S.O.

Talybont.—Merionethshire hospital (for 24 beds).

Wrexham.—Home for waifs and strays.

SCOTLAND.

Aberdeen.—Technical College: Schools of Engineering, of Fisheries, &c.

Ferryhill Schools: extensions and alterations (£11,500).

Dalbeattie.—Public school: additions (£3,350).

Dundee.—Picture Theatre, Long Wynd, for Mr. H. Morrison.

Edinburgh.—St. Margaret's Works: alterations, for N.B.R. Co.

Nos. 1 and 2 Atholl Crescent: alterations for the School of Cookery.

Inverkeithing.—Proposed Town House.

Kilsyth.—Council cottages.

Montrose.—Slaughter House: reconstruction.

IRELAND.

Dromiskin.—Parochial house. Mr. V. J. O'Connell, architect, 15 Earl Street, Dundalk.

PATENT SPECIFICATIONS PUBLISHED
DECEMBER 11, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 25,992. Nov. 12, 1912.—W. E. Braham, Elm Cottage, Clay Hill, Enfield. Apparatus for drying and heating or drying or heating sand, broken granite, and the like loose materials.

26,247. Nov. 15, 1912.—Dated under International Convention Nov. 20, 1911. W. K. Achert, Norwood, Hamilton, Ohio, U.S.A. Machines for detecting and indicating warpage of tiles and other articles.

26,789. Nov. 21, 1912.—G. D. Peters & Co., Ltd., and L. J. Le Clair, M.I.M.E., all of Moorgate Works, Moorfields, E.C. Weather strips or draught excluders for windows, doors, and the like.

27,437. Nov. 28, 1912.—G. C. Ilett, "Tenby," Fairmead Avenue, Westcliff-on-Sea, and A. E. Ilett, 131 Somerset Road, Coventry. Device for the trimming of the edges of wall paper.

27,812. Dec. 3, 1912.—Nino Magelssen, 9 Platongaten, Christiania. Building material and process for its manufacture.

1,256. Jan. 16, 1913.—J. H. Williams, 40 Lily Road, Litherland, Lancs., and Frank Hayes, 38 Green Lane, Seaford. Protective covering to be applied as a paint.

1,264. Jan. 16, 1913.—John Archibald, 76 Union Grove, Aberdeen, and William Dawson, 74 Huntly Street, Aberdeen. Conducting packing or covering for steam pipes, boilers, and the like, or for water, sewage, or other pipes or traps.

2,119. Jan. 27, 1913.—W. E. Dewhurst, Queen's Chambers, Fishergate, Preston. Locks for doors.

2,172. Jan. 27, 1913.—Dated under International Convention April 4, 1912. W. L. Harrison, Branford, New Haven, Conn., U.S.A. Fire extinguisher and other apparatus. No. 2,173. Jan. 27, 1913.—Dated under International Convention Nov. 15, 1912. Fire extinguishers, spraying devices, and like apparatus.

3,300. Feb. 8, 1913.—F. J. Strain, 2 Eileen Gardens, Belfast. Sliding window sashes, shutters, screens, doors, and the like.

5,037. Feb. 27, 1913.—Blaw Steel Construction Co., Pittsburgh, Penn., U.S.A. Columns, moulds for use in connection with concrete and like structures.

11,033. May 9, 1913.—Dated under International Convention Sept. 4, 1912. Ernst Heinrich, 41 Heilmannstr., Planegg, near Munich, Germany. Tip-up roofing and sky lights.

11,781. May 20, 1913.—Paul Rosenkranz, Juliusstr. 23¹, Leipzig-Volkmarisdorf, Germany. Casement windows and fanlights.

PETROS

The Stone Preservative that

Solidifies and Preserves Rotting & Crumbling Stone

for all time.

Now being used on some of the largest Warehouses, &c., in England.

PETRIFYING LIQUOR FOR DAMP WALLS.

A TRUE AND EFFECTIVE CURE.

"Ironstone" Cement for Pointing. Will adhere to anything, even glass! and is imperishable. References to many of the leading firms in the Kingdom.

Samples and Quotations.

THE WARD PETROS STONE PRESERVATIVE CO.,

4a and 6 Carpenter St., Charles St.,
MANCHESTER.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

THE FOUR BEST COMMERCIAL CHASSIS

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sup.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address ALL your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sewest, London." Telephone: Regent 2943.

*N.B.—All above fitted with the best solid Tyres,
i.e., Wood-Milne Steelrubber—other makes to order.*



DESIGNS TO ARCHITECTS' DRAWINGS AND
SPECIFICATIONS FORM A SPECIAL FEATURE.

Just published, New Catalogue, 296 pages, post free upon application.

FALK STADELMANN & CO., LTD.,
83-87 FARRINGDON ROAD, LONDON.

And at **GLASGOW
& MANCHESTER.**

ELECTRIC LIGHT FITTINGS

Of Every Description.

**FRENCH & ENGLISH
PERIOD FITTINGS.**

Very Large Selection of English
Fittings; also for Indirect and
Semi-Indirect Lighting.

17,549. July 31, 1913.—J. J. Kayle and Edwin Reed, 70 Albion Street, Leeds, York. Stained glass.
 17,706. Aug. 1, 1913.—H. L. Doulton and C. E. Morris, Lambeth Pottery, Lambeth. Moulds for casting joint rings on earthenware pipes or goods.
 18,725. Aug. 18, 1913.—J. A. Lillie, 208 Symington Avenue, Toronto. Pipe joints.
 18,986. Aug. 21, 1913. Dated under International Convention April 17, 1913.—Otto Arndt, 19a Neugoldbergstr., Liegnitz, Germany, architect. Scaffolding for making and finishing ceilings.
 19,465. Aug. 28, 1913.—F. W. Mellowes, Corporation Works, Corporation Street, Sheffield. Glazing.
 Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Registration Proposals of the Council of the R.I.B.A.

SIR,—We have arranged for an informal meeting of Associates to take place at the Royal Institute for exchange of views relative to the Council's proposals now before the members of the Royal Institute.

The meeting will be held in the Great Gallery of the R.I.B.A. on Tuesday, December 30, at 7.30 P.M., and all Associates interested in the question are cordially invited to be present.

ROBERT ATKINSON.
 G. L. ELKINGTON.
 K. GAMMELL.
 EDWIN GUNN.
 E. STANLEY HALL.

The Value of Thatched Roofs.

SIR,—Farmers, landowners, and all who love the country must feel an interest in this subject, and a copy of the little pamphlet recently issued, containing a few from among many letters from persons well qualified to speak, will gladly be sent by me to anyone on receipt of a postcard.

The value of thatch as a roofing for all kinds of stock is emphasised by men of the highest authority, as well as its general utility and economy in the long run for houses, barns, and all rural buildings; while its beauty and fitness in rural surroundings cannot be surpassed.

I am inclined to think that the complaint of the scarcity of men to do the work is exaggerated, for in many districts there are plenty of good thatchers. A recent Devon directory gives 123 in that county alone; and I know that they are not all old men. And, needless to say, when the demand increases lads will learn thatching who would otherwise go into other callings.

It does not seem to be generally known that Lloyds will insure thatched buildings of stone, brick, or cob at only 2s. 6d. per cent. This minimises an often-urged complaint; while another objection to thatch, that of harbouring fleas, &c., can, I believe, be guarded against by dressings of corrosive sublimate.

I will send particulars of fire-proofing preparations or insurance at the rate mentioned above to anyone interested in the subject, and shall be glad to receive any suggestions for maintaining the use of the beautiful, serviceable, and typically English roof-covering beneath which millions of our forefathers lived and died.

The pamphlet referred to contains the signatures of prominent agriculturists, medical men, architects, and artists; and architects of the highest standing are using thatch in many parts of the country, well knowing its intrinsic value and rejoicing in its harmony with our matchless English countryside.—Yours obediently,

L. MARK KENNAWAY.

St. Helens, Teignmouth.

[An Historical London Church.]

SIR,—Permit me to thank you for your very kind and courteous notice of the above little book in last week's issue of *The Architect*.

You observe, "To the public at large there will not be

any appeal in a book of a purely parochial nature, and written (we believe) for private circulation in the parish."

With your permission I will take the opportunity of remarking that the book was not put forth with the object of its interest being exclusively confined to St. Matthias Church and its parish, and the large circulation the book has had among persons in no way connected with us has more than justified this intention. The "visitors' book," too, reveals the fact that St. Matthias is inspected daily by people from all parts of England, several persons of title and distinction having honoured the church with visits.

I may add that "An Historical London Church" has had the more dubious honour of being laid under contribution by a writer in a certain church monthly magazine for an article upon St. Matthias, without, however, any acknowledgment being made of the source whence his information is derived.—Yours faithfully,

T. FRANCIS BUMPUS.

Vicar's Warden, St. Matthias Church, Stoke Newington.
 December 16, 1913.

The Architects' and Surveyors' Approved Society.

SIR,—I think your readers will be interested to have a short account of the first year's working of this Society.

It completed its first year on July 13 last, and at that date there were 1,606 subscribing members associated with it. These numbers have steadily increased, and at the date of writing this letter the membership stands at about 1,900. The membership is confined solely to those employed in the architectural and surveying professions. In addition to the subscribing members there are sixty honorary members.

When the Society was formed, I ventured to predict that it would prove advantageous to those concerned, for two principal reasons, viz.:—

1. That the average health of the members, as a class, would be good.
2. That the proportion of persons passing out of the category of insured persons would be higher than in non-technical professions and businesses; and that, as a consequence, the funds available for benefits, in addition to those provided by the Act, would be larger than in Societies with a miscellaneous membership.

These anticipations have been amply fulfilled. During the year under review benefits have been payable only for six months. In that period the actual sickness and maternity experience of the Society as compared with the estimates of the Government Actuaries is as follows:—

Actuarial estimate	£525 16 1
Actual payments	153 9 8

Leaving a saving in practice, as compared with estimates, of 372 6 5

Thanks to the generosity of the Royal Institute of British Architects, the Surveyors' Institute, the Architectural Association, the Society of Architects, and the Quantity Surveyors' Association, the cost of launching the Society has not fallen upon its membership funds, as these five Institutions subscribed £220 between them for this purpose.

The cost of the ordinary administration is about 2s. 7½d. per head, as compared with the sum of 3s. 5d. per head allowed under the Act. The satisfactory figure at which it has been kept is due to the united efforts of the Secretary and the committee. In this connection it should be mentioned that no member of the committee has accepted any fee or expenses in connection with his attendance thereat.

If the saving on the sickness benefit (as compared with the Government estimate) and the saving on the administration are added together a surplus of £509 17s. 11d. is arrived at on the year's working. In this connection it should be borne in mind that, as before stated, the sickness benefit has only been payable for six months, and, therefore, there should be a greater saving during this year if the general health of the members remains the same.

The number of persons who have ceased to be members of the Society, owing to their passing out of the category of insured persons consequent upon the rise in their incomes, is 102.

In view of the very satisfactory nature of these figures, I have every confidence in urging all persons who are engaged in architects' and surveyors' offices and are eligible for membership to join the Society.—I am, Sir, your obedient servant,

GEORGE CORDEROY,

Chairman of Committee of Management.

18 Tufton Street, Westminster.
 December 15, 1913.

Callender's Dampcourses

have gained
First Place in Specifications

by reason of
Standard Quality,

and
Ledkore

(Lead and Bitumen)

Is the Last Word in a Patent Dampcourse.

FINEST COMBINATION POSSIBLE.
GUARANTEED FREE FROM COAL-TAR OR PITCH.
NO SQUEEZING. NO CRACKING.
NO EXPENSE IN LAYING.
From 4d. per foot super. All Wall Widths. 24 feet Lengths.

Send for Booklet "A" and Sample free from

GEORGE M. CALLENDER & CO., Ltd.

Contractors to Admiralty, War Office, Office of Works, L.C.C.

25 Victoria St., Westminster, S.W.

REA METAL CASEMENTS

LTD.,

KNOWSLEY WORKS, STANLEY, LIVERPOOL.



HALF FULL SIZE.

Telephone,
365 Old Swan.
Telegrams,
"Enlighten, L'pool."

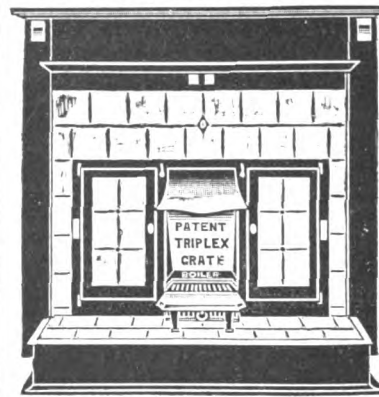
MANUFACTURERS OF

**METAL CASEMENTS
& SASHES of every
description,
LEADED GLAZING &
STAINED GLASS.**



CONTRACTORS TO
H.M. GOVERNMENT.

THE "TRIPLEX" PATENT Combination SITTING ROOM GRATE



**ONE FIRE does the work
of the household.**

You can cook in the ovens
with the greatest ease.
The bath water is heated
very quickly, giving 2 hot
baths per hour.
The tiled front gives a
smart appearance.
No black-leading required.
Entire absence of dust
or dirt from the fire.

Complete Specification sent
on application.

HORRELL & BOWMAN

Patentees & Manufacturers,
508-510 Moseley Road,
BIRMINGHAM.

Ben Henry Johnson & Sons

MODELLERS and PLASTERERS

ARTISTIC FIBROUS PLASTER WORKERS

SPECIALISTS IN FRENCH STUC WORK

Mouldings in Wood, Compo & Enriched Plaster

A FEW RECENT IMPORTANT CONTRACTS:

NEW ADELPHI HOTEL, Liverpool

(First and Second Contracts)

NEW LIVER CHIEF OFFICES - - - Liverpool

WHITELEY'S NEW PREMISES - Westbourne Grove

CARLTON HOTEL (after Fire)

VICKERS HOUSE - - - - - Broadway, London

69 VICTORIA STREET, LONDON, S.W.

And Primrose Hill, Fontenoy St., LIVERPOOL.

Wires:

"JONSONIPLA, LONDON."
"HENJONIN, LIVERPOOL."

STUDIOS AND WORKSHOPS:
PARKHILL RD., HAMPSTEAD

'Phones:

5419 VICTORIA.
626 & 627 CENTRAL, LIVERPOOL
(ADELPHI) ROYAL 4434.

The Architect.

CONTENTS.

	PAGE
Repair of Ancient Buildings	589
Notes and Comments	590
R.I.B.A. Examinations	590
The Gate-house, Little Moreton Hall, Cheshire (illustrated)	591
Art in London	592
Competition News	592
Illustrations :—	
Cortile of Palazzo Vecchio, Florence	592
Lloyds Bank, Keighley	592
The Cortile of the Palazzo Vecchio, Florence (illustrated)	593
Building By-Laws and the B.C.A. Bill	594
Daylight Illumination and School Planning	597
English Neo-Classic Architecture	599
Stained Glass and Stained Glass Cartoons	601
Nottingham and Derby Architectural Society	602
Ecclesiastical Architecture in Central Italy	603
Rathaus at Rudolstadt (illustration)	604
New Evangelical Church at Charlottenburg (illustration)	605
Building Progress in the Provinces	607
British Patent Specifications	609
Correspondence	611

THE REPAIR OF ANCIENT BUILDINGS.

IN the interesting paper by Mr. W. A. Forsyth, read before the Royal Institute of British Architects on the 15th inst., the connection of the author with the Society for the Protection of Ancient Buildings naturally influences the point of view. We find that the importance of maintaining the history of an ancient structure is frequently expressed, but we regret also to notice that the modern tendency which we have before pointed out in the reports of the Society, to recommend the introduction of fads and what the present architectural advisers consider improvements, is also manifest. We notice that Mr. Forsyth looks askance at the prospect of the future care of ancient monuments being entrusted to a Government department, notwithstanding the excellent work that has been done by H.M. Office of Works and other departments of the Government under the guidance of Mr. C. R. Peers as Inspector of Ancient Monuments. "There are unmistakable signs, however," says Mr. Forsyth, "that, by reason of the system of accounts, estimates, supervision, absence of personal responsibility, and other routine necessary to a Government department, the buildings under treatment have been receiving too much repair. The personal element breaks down under this procedure, and the staff are unable to cope with the extraordinary number of works lying in the extreme boundaries of the Kingdom." We think that in this criticism Mr. Forsyth has touched upon the most serious drawback to the preservation of ancient buildings, not only by Government departments but by their owners and custodians and the architects who advise them—that is, the tendency to carry out too much repair. Architects naturally have an inclination to do their work thoroughly, and under the impulse of that inclination may often be led, in dealing with ancient buildings, to recommend too much rather than too little. The suggestion made by the author that the various Allied Societies of the Royal Institute should make a practice of visiting and inspecting old buildings that have been repaired is one that cannot fail to be of value. This is work that can be done by local societies far better than by a central body, such as the Royal Institute, or a Government department.

Mr. Forsyth was within reason in advising a careful reconsideration and revision of the Institute's publications on the "Conservation of Ancient Monuments" and "Hints to Workmen." It should be noted that Mr. Forsyth's criticisms of these documents all tend to the preservation and the making of historical records as the

dominant principle rather than harmonious repair. This is a question which is open to discussion, and again brings up the contesting claims of history and art, to which we have referred in a former article. It surely cannot be recommended as a fundamental axiom that an ancient building shall be made patchy by the introduction of incongruous work in order that future visitors may be able to see quite clearly that modern repair has been performed.

We are entirely in accord with Mr. Forsyth in his condemnation of rash recourse to underpinning. A crack in a building does not necessarily imply danger. All that it truly indicates is that a certain amount of uneven stress has come upon different parts of the structure. The dislocation which is evidenced by the crack has removed the strain, and the parts are now, in the majority of cases, doing the work which they are called upon to perform safely, soundly and quietly. The crack might have been avoided if the unevenness of stress had been recognised by the original builder and provision made for its accommodation, as when we build a straight joint between a lofty tower and an adjacent building of less height. When, therefore, one encounters a settlement or crack, it is a mistake to rush at once to the conclusion that underpinning is necessary.

The correct diagnosis of the trouble which Mr. Forsyth advocates is the first step of importance—diagnosis, that is, not only of the cause but of the result of the uneven stress which has caused the indication.

In the course of this section of his paper, Mr. Forsyth makes a charge that "architects are frequently guilty of recommending the removal of old oak bell cages and substituting an iron girder system of hanging bells." Our own experience has been that old oak bell cages are very usually the subject of decay, which has diminished not only the strength but the scantling, particularly at the joints of the ancient structure, and it is usually the bell-founder, rather than the architect, who recommends the iron bell-frame.

Many details in Mr. Forsyth's paper are open to criticism. For example, we cannot follow him in his statement that cement tell-tales are inferior to those of plaster of Paris, because the former tend to expand and crack, and expansion does not take place in the latter to the same extent. Any practical plasterer will tell Mr. Forsyth that plaster of Paris always expands on setting, and that the question whether cement does or does not depends entirely on the selection of the cement, so that whilst one can use cement tell-tales that will not expand, one cannot use those of plaster of Paris without expansion.

We are very glad to find that Mr. Forsyth is of opinion that "there are occasions—usually in thick walls—when hydraulic blue lias lime-mortar would be adequate as a grouting medium." We are prepared to go very much further than this, and to say that with walls built of limestone, blue lias is always preferable to Portland cement.

We cannot agree with Mr. Forsyth in his views under the heading of drainage. For example, he says: "The omission of eaves-gutters greatly enhances the interest of a building." Here we have an unmistakable fad. It cannot be contended that the absence of eaves-gutters is beneficial to the durability of a structure. It does increase the artistic interest by the accidental stains and splashes of discoloration seen on the walls, and by the concomitant extra projection of the eaves which is its necessary corollary. Nor can we agree that "surface channels are in all cases to be preferred to hidden drains" in the matter of churches. True, Mr. Forsyth says that they should at all times be kept clear. This is exactly what they are not. Neither are they, in the great majority of instances, so constructed as to be free from leakage.

We are entirely in accord with Mr. Forsyth in his recommendations with regard to tile roofing, particularly with reference to the ancient custom of laying the tiles in hay or straw. The immeasurable superiority of

this method of preventing the greatest drawback to the use of tiling—the driving under their cambered forms of rain, and especially snow—is prevented by the use of hay, without the loss of the free circulation of air which is so essential to the durability of tile roofing, and which makes all use of mortar, even for torching, very undesirable.

One might continue to a considerable length to discuss the various details with which Mr. Forsyth dealt, but space forbids a fuller treatment.

NOTES AND COMMENTS.

THE decision of Mr. Justice Scrutton on the claim made by the Commissioners of Inland Revenue for undeveloped land duty on the land immediately adjoining Devonshire House, Piccadilly, disposed of some of the contentions of the Commissioners, particularly the claim that the developed land was limited to the site actually occupied by the buildings, but it still leaves open to question how much of the land surrounding any particular house is to be regarded as curtilage and developed, and how much is to be included in the non-taxable, though undeveloped, acre, or how much is taxable. It is clear from the judgment that his Lordship admits the possibility that the curtilage may be of an undefined extent, depending upon the circumstances of any particular case, so that, although we have not a clearly defined hard-and-fast rule applicable in every instance, we have for the present and subsequent to any further appeal the construction of the word "dwelling-house" as meaning "house, outbuildings, curtilage and the open spaces included therein other than gardens or pleasure grounds."

The lecture delivered by Professor R. Caton on "Health Temples in Ancient Greece and the Work carried on in Them," is of great interest, as enabling us to better understand the planning of those temples and their accessories. Of these temples that of Epidauros was the most important centre of the cult of Asklepios. The precinct of the god as seen from the south showed a splendid array of temple, stoae, a great theatre, a stadium, and a grove. The temple, built in the fourth century B.C., showed on the eastern pediment a combat between Greeks and Amazons, on the west a conflict with Centaurs, a Victory being on the apex and Nereids on the acroteria. In the interior was a splendid gold and ivory figure of the god, with a golden serpent and temple dog. The hospital ward had an open colonnade on the south, and towards the west end, where incubation took place, was two storeys in height. The tholos or thymele, which was probably the lair of the sacred serpents, was the most splendid circular building ever created by the Greeks. It was Doric externally and Corinthian within, and contained two celebrated paintings, Methe and Eros. The stadium was 600 feet long, and on the side of the hill could be seen the theatre, built in the fourth century by Polycleitus, and one of the most beautiful of those existing to-day. It could seat 12,000 spectators, and its acoustics were perfect.

We note that despite very strong opposition the question of the opening of the Scottish National Museum of Antiquities at Edinburgh on Sunday was decided in favour of the recommendation of the Council of the Society of Antiquaries of Scotland, that the opening of the Museum on Sunday should take place. Lord Guthrie, speaking against the motion to the effect that the Museum should not be opened on Sunday, but that the Council should consider the advisability of opening it on the evening of week-days in the summer, admitted that the form of presentation of the annual report might be improved, although that did not imply that blame attached to those who had framed it in the past. He pointed out that the arrangements would permit of the attendants being present at public worship, and that they would have in the seven days one clear

day of rest. The Society might take it the men had no objection to the proposal. It might be said what about cinema shows and music-halls if they opened a museum, but that suggestion showed a want of humour. He did not think it could come from anybody who had observed the kind of people who frequented their galleries or the not very frivolous or exciting exhibits contained in their cases. The Council thought in giving a carefully guarded opening day they would bestow a substantial public benefit without any infringement of any Christian principle and without any detriment to religion. The Treasury and the Board of Trustees, whatever the opinion of the Society, could open the Museum on any part of Sunday they liked; and if they thought the Society was forgetting that it was simply administrator for the public, they might quite well take the matter into their own hands. The public were entitled to admission, and they hoped that, especially through the schoolmasters and the schools, they were going to get in the future a far larger number than ever, and make this a popular institution, much more than it had ever been.

R.I.B.A. EXAMINATIONS.

THE FINAL: ALTERNATIVE PROBLEMS IN DESIGN.

1. The drawings, which should be on uniform sheets of paper of not less than imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9 Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and his name and address, and the name of the school, if any, in which the drawings have been prepared, must be attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the student that the design is his own work and that the drawings have been wholly executed by him. In the preparation of the design the student may profit by advice.

4. Drawings for subjects (a) are to have the shadows projected at any angle of 45° in line, monochrome, or colour. Drawings in subjects (b) are to be finished as working drawings. Lettering on all drawings must be in a clear scholarly character.

Subject XIII.

(a) A large fireplace in the main reception room of a town hall.

Drawings required.—Detail drawings to $\frac{1}{2}$ -inch scale. Important details to 1-inch scale.

(b) A single-span footbridge over a stream 40 feet wide, in any material that the candidate may select.

Drawings required.—Detail drawings to $\frac{1}{2}$ -inch scale. Important details to 1-inch scale.

Subject XIV.

(a) Council offices for a small town on an open site. The cost of the building not to exceed £15,000.

Drawings required.— $\frac{1}{4}$ -inch scale and $\frac{1}{2}$ -inch.

(b) Completion of a tower by a lead spire. The tower is 24 feet square outside measurement, 60 feet high to top of parapet. (Cornice and parapet not existing, but to be provided.) There is a newel staircase in the centre of one side of the tower.

Drawings required.— $\frac{1}{4}$ -inch scale and $\frac{1}{2}$ -inch.

Subject XV.

(a) A museum (detached) in the park of a country town. The cost of the building not to exceed £15,000.

Drawings required.— $\frac{1}{4}$ -inch scale and $\frac{1}{2}$ -inch.

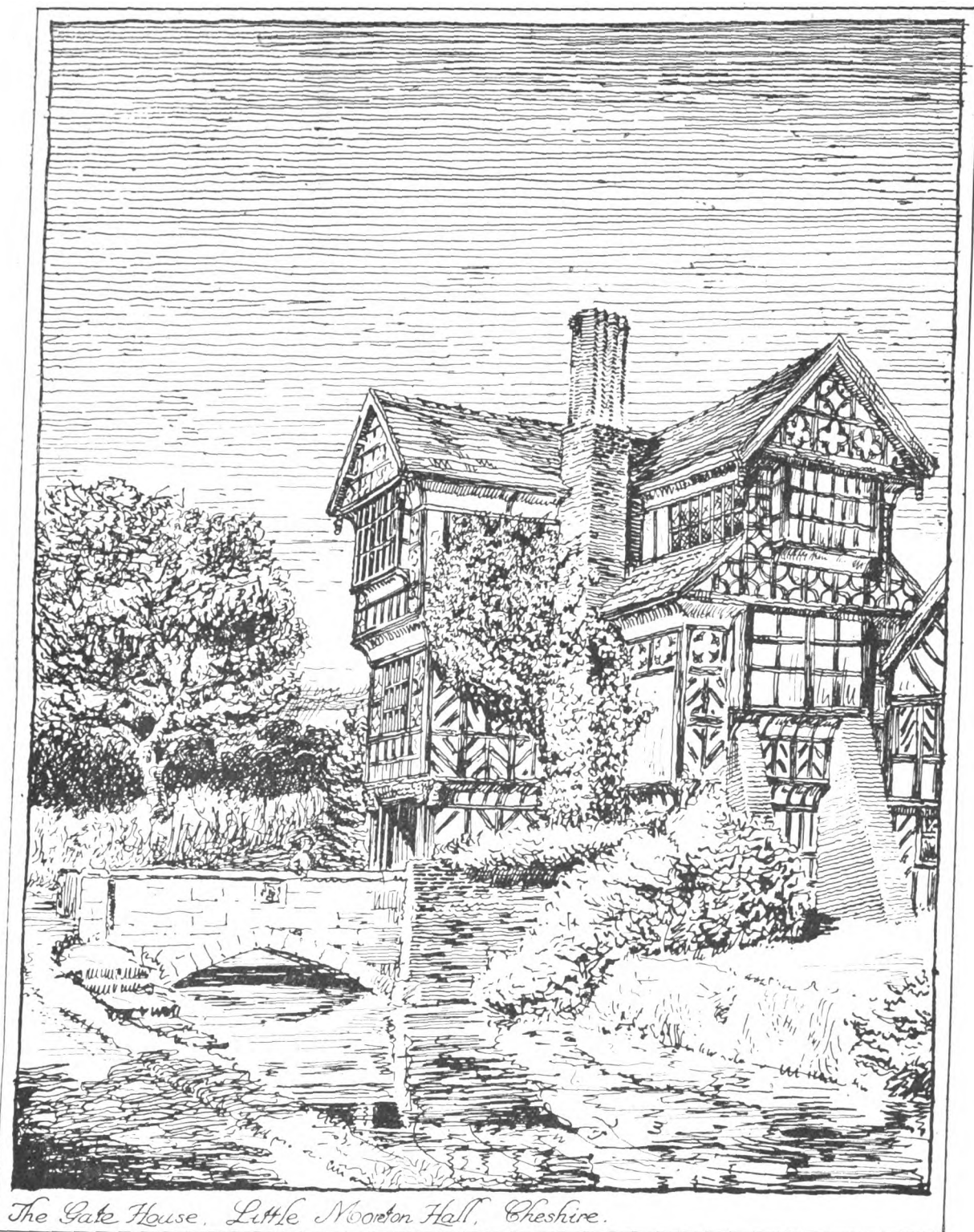
(b) An open timber roof to a school hall, span 45 feet. The hall is 80 feet long. One bay only to be shown.

Drawings required.— $\frac{1}{4}$ -inch and important details to 1-inch scale.

Dates for Submission of Designs in 1914:

	Subject XIII.	Subject XIV.	Subject XV.
United Kingdom ...	Feb. 28	April 30	June 30
Johannesburg ...	April 30	June 30	Aug. 31
Melbourne ...	May 30	July 31	Sept. 30
Sydney ...	May 30	July 31	Sept. 30
Toronto ...	March 31	May 30	July 31

"THE ARCHITECT" STUDENTS' SKETCHING AND MEASURING CLUB



The Gate House, Little Moreton Hall, Cheshire.

From a Drawing by "EBOB"

THE GATEHOUSE, LITTLE MORETON HALL, CHESHIRE.

CHESHIRE is famous for its examples of black-and-white work, but Little Moreton Hall is possibly the most charming of all. On approaching the hall the gatehouse attracts attention. Every view of this block reveals such a profusion of black and white in patterns of quatrefoils, parallel lines and the rest, that at first sight one is almost bewildered. A stone bridge spanning the moat has long supplanted the original drawbridge. The hall was built in the sixteenth century by William Moreton. The original heavy door of oak still hangs at the entrance, and can be moved, but only at the expense of much muscular exertion. Passing through the gateway, one enters a cobble-paved courtyard, overlooking which are the octagonal bays, which are well known. It is said that each window of the lower storey contains 500 panes of glass. These panes are arranged in various geometrical designs. The cornice to these bays is richly carved, and contains an inscription which gives a clue to the date

of the building. The following is a literal transcription of the lettering and the figures intermingling with it:—

"GOD IS AL IN AL THING. THIS (FOX) WINDOVS (Running Hare) WHIRE (Jester's Head) MADE BY WILLIAM (Dragon) MORETON IN THE YEAR OF (Head of bear—the Brereton Crest) OURE LORDE MDLIX (Bull's Head—the Bulkeley Crest.)"

A circular stair gives access to the ballroom, which, though narrow—being only 12 ft. wide—is 75 ft. long. This room has an open timber roof, and at each end the internal face of the gable wall is modelled in plaster. The east end bears the figure of Destiny, and is partly coloured, the other end having a figure of Fortune. Over the main entrance to the hall is a secluded retiring-room. This is panelled, and has a fireplace which has figures of Justice and Mercy, and bears the arms of Moreton and Macclesfield. It would be difficult to imagine a more picturesque composition than that which is presented by the gatehouse, with its intricacy of jet-black and snow-white reflected in the water of the moat. It is "indeed a scene to linger in the memory."

ART IN LONDON.

EDMUND DULAC AND HUGH THOMSON.

We knew we should be inspecting good work, and it was one of those all too rare instances where anticipation did not outrun realisation. Messrs. Ernest Brown and Phillips have scored another success in this collection of illustration work by Edmund Dulac for "Princess Badoura," &c., and by Hugh Thomson for "Quality Street" and "She Stoops to Conquer." The drawings are fittingly shown in a gallery named after Hogarth, that great character-draughtsman whose house is situated in all its sturdiness just opposite the Leicester Galleries.

For Dulac and Thomson are excellent character-artists, each in his own—we will not say inimitable, but unsurpassable—style. Exaggeration is ever deplorable, and it would savour of this quality to profess that these two moderns are unapproachable; therefore we are content to affirm that they are second to none. Their distinctive styles, too, are interesting in their distinctiveness. The one so finished—one might almost say laboured, did not this adjective unfortunately suggest a reproach; the other style so light and dainty in the Dresden-china type, but at times exhibiting a carelessness of line in the building details that no plea of age in the structure can justify. Edmund Dulac's technique is essentially for the *édition de luxe*, whilst Mr. Thomson might be regarded as satisfying the everyday requirements of an art-loving public. The story of the Princess Badoura is doubtless known to us all, and into its fabric Mr. Dulac has woven his illustrations with a fully sympathetic sense, and he transports himself into the century and environment of the stories. Nor is there lacking a restrained portrayal of humour where such is desirable. The Chinese atmosphere is well conveyed in the illustrations of the Princess's home. If a selection may be made, we would suggest as the best (where all are very good) "Dahnash and Meymoonah" for the Arabian Night story, and the following from Mr. Dulac's miscellaneous works—namely, "Nicolette," "Who Can Find a Virtuous Woman," "L'amoureuse transi," and "La petite lingère." Mr. Dulac is very fond of a blue palette, and this is apt to produce a certain sensation of melancholy in regarding his work, but it is a pleasant melancholy, such as Jaques loved to indulge; the artist is, however, always harmonious and at times almost bright.

Mr. Thomson, like Mr. Dulac, invokes the magic carpet to transport him to the time and place of his stories; in the illustrations for Barrie's "Quality Street" regard, for instance, No. 21, where the very formal posing of the young ladies helps to convey the idea of the drama's period. Regard, too, the piquancy of Phoebe in No. 26, and the roguishness of the boy in Nos. 30 and 31. We referred to the careless drawing in a few cases, where buildings are concerned; mostly the freedom of touch aids in producing the effect of age, but in some instances the freedom degenerates into license. The series of illustrations for "She Stoops to Conquer" are admirable, Nos. 44 and 46 proving especial favourites of ours; but indeed (if we may say so) the whole of the exhibits are our favourites, properly understood, and we think the general public will be in accord.

COMPETITION NEWS

BARNESLEY.—The County Borough Council invite applications from architects desirous of taking part in a competition for a town hall and municipal offices in Church Street. Three premiums of £100, £50, and £25 will be offered. Particulars and conditions will be forwarded by Mr. W. P. Donald, town clerk, Barnesley, on receipt of a stamped addressed envelope.

LONDON.—The London Society offer a prize (the Gold Medal of the Society and £15) for the best design for the improvement of the north and south entrances to the Broad Walk of Kensington Gardens, London.

The fullest liberty is offered to competitors with regard to the alteration of existing conditions and as to the nature of the architectural and garden treatment to be proposed. The extent to which the proposals shall apply is not limited, provided that in accordance with the promoters' intentions both entrances to the Broad Walk are dealt with. It is suggested that in any case the scheme should include handsome gates. Emblematical ideas might be embodied in the sculpture, &c., such as, for example, the progress of Queen Victoria's reign and the peace of King Edward's.

Drawings required.

Block plan to ordnance scale (eighty-eight feet to one inch).

Plans and elevations of, north and south ends showing architectural features to one-eighth-inch scale.

One double elephant sheet of detail to half-inch scale.

At least one perspective sketch.

All schemes to be eligible must be delivered on or before Wednesday, March 11, 1914, at the office of the Royal Institute, addressed to the Secretary, R.I.B.A., 9 Conduit Street, Hanover Square, London, W. Each packet is to be clearly marked on the outside with the words "London Society's Prize," and the competitor's motto must be legibly written on the outside of the packet at the right-hand lower angle.

All drawings submitted will be considered available for illustration in any publication, at the discretion of the Committee of the London Society.

Due care will be taken of all drawings, but the London Society and the R.I.B.A. will not be responsible for any loss of or damage to them while they remain in the hands of the R.I.B.A.

Any drawings submitted by two or more competitors are not eligible for the prize.

The award will be made at the request of the London Society by a committee appointed by the Council of the R.I.B.A.

Each set of drawings is to be submitted without the name of its author, but with a motto legibly marked on the right-hand lower angle of each mount, and is to be accompanied by a letter containing the competitor's name and address, which is to be enclosed in an envelope sealed with a blank seal, and having, on the outside, the name of the prize competed for and the same motto as that attached to the work submitted. The sealed envelope must be enclosed in another envelope and sent by post, directed to the Secretary R.I.B.A., No. 9 Conduit Street, Hanover Square, London, W.

The carriage of the drawings to and from the office of the Royal Institute, and all expenses incidental thereto, must be paid by the owners. Such drawings will be returned on application, on the production of a formal demand, but the Royal Institute will not incur any expense in returning them; but if no such application is made within a period to be specified at the close of the exhibition they will be despatched to the owner's address at the owner's risk, carriage unpaid.

SALFORD.—The Borough Health Committee invite architects who desire to be included in a competition for a proposed tuberculosis sanatorium to send in their applications by Dec. 31. From these applications a limited number will be invited to prepare competitive designs. The sanatorium is to be built at Nab Top Farm, Marple, at a cost of £15,000, or £150 per bed. Mr. J. Brooke, F.R.I.B.A., will act as assessor.

ILLUSTRATIONS.

CORTILE OF PALAZZO VECCHIO, FLORENCE.

The plates illustrating the famous cortile of the Palazzo Vecchio, Florence, are given in connection with the article by Mr. J. Tavenor Perry.

LLOYDS BANK, KEIGHLEY.

This is one of a series of branch establishments of Lloyds Bank in Yorkshire erected from the designs and under the superintendence of Mr. Sydney D. Kitson, M.A., F.S.A., F.R.I.B.A.

MR. T. HYSLOP URE, architect, Dunfermline, died on the 19th inst. at his residence. Mr. Ure served his apprenticeship to the profession under ex-Provost Scobie, and shortly afterwards began business on his own account. He built up a good business during the last twenty-five years. One of his first works was a large extension to the warehouse of Messrs. Andrew Reid & Co., linen manufacturers. He also drew the plans for the United Free Churches at Townhill and Kelty, as well as for the municipal buildings at Cowdenbeath. Owing to failing health and increasing business he assumed Mr. D. Beveridge, his principal assistant, as partner, and they were responsible for a great amount of domestic architecture in the city and district, besides the erection of schools at Townhill and Limekilns. Mr. Ure, who was not married, was about fifty years of age.

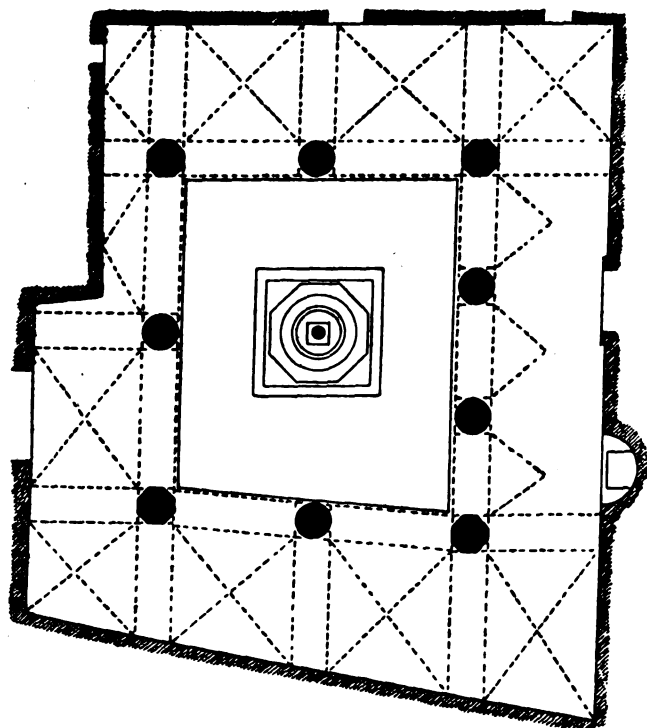
THE CORTILE OF THE PALAZZO VECCHIO, FLORENCE.

(See Illustrations.)

By J. TAVENOR PERRY.

THE beautiful cortile through which one enters the Palazzo Vecchio presents a remarkable contrast to the rugged simplicity of the façade of the building. At first sight it has a somewhat sombre appearance, for it is never visited by the direct rays of the sun, and depends for its illumination on the chance light from the western door and the patch of sapphire sky above it, and it takes a little while for the eye to get accustomed to its gloom and be able to take in the details of its ornamentation. One result is that the casual visitor generally gives the court but scant attention in passing through it, though only those who will linger long enough in it can appreciate the full beauty of its exquisite decorations; but to those who know their Florence, it must ever seem one of the most delightful corners of that ancient city.

It is unnecessary here to repeat the well-known story of the first building of the Palace by Arnolfo del Cambio, except to point out that the irregular form which he was compelled to give to this cortile was entirely due to the cramping of the site at his disposal; and although Vasari boasted that he had so altered and improved the building that Arnolfo would not know it again, he was quite unable to make square what was originally crooked. But the imperfections this entails are much less perceptible than a reference to the plan might lead us to expect; and all idea of distortion is entirely lost in the charm of the *ensemble*. It should be mentioned, however, that one of the irregularities, in the projecting extra thickness of the wall in the north-western angle of the corridor, did not result from the awkward shape of the site, but from an attempt



APPROXIMATE SCALE
0 10 20 30 40 50 FEET

SKETCH PLAN
OF THE
CORTILE
OF THE PALAZZO VECCHIO
FLORENCE

made to strengthen the main wall under the tower which rises above this point.

The plan and general arrangement of the cortile are still practically the same as left by Arnolfo, for the works done to the Palace by Taddeo Gaddi, after his death, were confined to the completion of his design or to the raising of the upper part of the building. The first important structural alterations made to the fabric were those undertaken by Michelozzo in making the Palace more suitable for the residence of his patron Cosimo de' Medici on his return from exile in 1434; but, so far as the cortile is concerned, these works seem only to have extended to general reparation, and Vasari gives a full and interesting account of their details.

Michelozzo's instructions from Cosimo seem to have included not merely a restoration and, where necessary, a reconstruction of the old Palace so as to make it a proper dwelling for the House of Medici, but also a thorough repair of the main fabric. In making his survey, he found that several of the pillars in the cortile were cracked, perhaps having had, through Taddeo Gaddi's additions, to carry heavier weights than Arnolfo designed them to bear; and it was decided to remove them. To do this, we are told, he fitted new centres to the old arches and shored them up before removing the columns, from which it is evident that the old arcade was saved, and that the arches we now see are part of Arnolfo's original design. Having done this he took out the old columns piecemeal and inserted new of a different design so as to distinguish them from Arnolfo's work, by which is perhaps meant that he gave them a stronger section, and he made those in the angles octagonal and the intermediate ones cylindrical. He also inserted new capitals "carved," as Vasari says, "with foliage after the modern fashion." As this was the sole structural alteration Michelozzo made to the cortile, and the original arcade remained untouched save for the slight modification of the columns, we still see it as it left the hands of its original architect; and the remodelling of which Vasari boasted later on could have extended no further than superficial decoration.

The last works done to the Palace were carried out in 1565 under the superintendence of Giorgio Vasari, though it is impossible to assign any particular feature in the cortile to his direct initiative. The occasion was the marriage of Francesco de' Medici, son and successor to the Grand Duke Cosimo, with Joanna of Austria, daughter of the Emperor Ferdinand II. of Germany. The decorations then added to the cortile consisted of arabesque paintings, interspersed among which were views of German cities, perhaps intended as a pleasing lure to Florentine ambition; and, more important still, the stucco reliefs which were added to Michelozzo's columns. Vasari, unfortunately, gives no definite account of this work, and although it is usual to assign it to various stuccoists of uncertain personality, there is a reasonable probability that it owes its inception to Marco da Faenza, if it was not indeed his actual handiwork.

There was a particular appropriateness in this mode of decoration and in the employment of Marco to carry it out. It was Cardinal Giovanni de' Medici, afterwards Pope Leo X., whose excavations of the Baths of Titus and the Golden House of Nero beneath them that led to the discovery of the celebrated stucco arabesques which Raphael and his assistant, Giovanni da Udine, adapted to the Loggia in the Vatican; and Marco da Faenza was employed on the stucco work in that of the second stage better known as the Loggia of Raphael. Marco appears also to have been more or less associated with Primaticcio; but he remained in Italy when his friend was induced to undertake the work in France at Fontainebleau and elsewhere.

These stucco decorations are most charming in their design and exquisite in detail, and will repay the closest examination; and that in spite of John Ruskin's remarks in his *Seven Lamps of Architecture*, where he says, "The stucco mouldings in the cortile of the Palazzo Vecchio at Florence cast a shame and suspicion over every part of the building."

Our illustration of the cortile gives the view of it as it appears from the north-west angle and embraces six out of the nine columns of the arcade, and it shows not only the richness of the designs employed in the stucco-work, but the great variety they exhibit. Michelozzo had already displayed his ready invention in the carving of the capitals, no two of which are alike; and Marco da Faenza followed his lead in a material which gave even greater scope than stone for exuberant fancy. There was also the further element of diversity in the alternate octagonal and cylindrical-shaped columns, of which he took full advantage in his design, but he carefully placed the ornamental bandings at about the same level throughout, and thus maintained an appearance of complete symmetry.

It is unnecessary to analyse at any length the several designs employed, as they are sufficiently shown on the three illustrations of various details, and we will confine ourselves to noticing one or two of the leading characteristics. It may, however, be pointed out that the work is of considerable magnitude, as each column girths over ten feet and the shafts are fifteen feet in height; and, as the nature of the work is both laborious and demands continuous attention, the legend that it was done by several artificers seems

to be very probable, although the general superintendence and design must be attributed to Marco.

The richest of the ornament is lavished on the bands, of which each column has one but more generally two, the lower ones ranging throughout and stopping the bold reeding, like reversed fluting, with which the lower third of all the columns is covered. The band of which we give an illustration has very beautiful and boldly modelled putti bearing heavy swags of leaves and fruit, recalling those frequently seen on ancient sarcophagi, as, for instance, the one which forms part of the monument to the Savelli family in Sta. Maria in Ara Coeli, Rome, for which Giotto designed the canopy. In a similar manner the spaces above and below the swags are filled in with figures of men and beasts; and in the detail we give occurs the group of Hercules and Anteus, which, perhaps, Nagler confused with that by Rossi in the niche behind it, to which we shall refer later on. Very beautiful swags occur on some of the other bands, but they want the richness and projection of this one, the classic feeling in which may be due to the hand of Marco da Faenza himself.

The work upon the shafts is not in such high relief except at the masks or the little groups of figures which, catching the light from above, make points of brightness on a darker background. The treatment of the designs on the octagonal and cylindrical pillars is suitably varied; in the former case each face is treated as a complete and separate composition, the alternate panels being generally made alike, which has the effect of accentuating the angular form. On the other hand, in the cylindrical pillars the design spreads symmetrically round the shaft, except with one beautiful exception, where branches of vine with leaves and bunches of grapes rise from the band to the capital in graceful spirals. Of each of these methods we give an example.

In the centre of the cortile, like a gem in a beautiful setting, stands Andrea del Verocchio's well-known winged boy holding a dolphin, from the mouth of which spurts the little fountain—one of the most graceful groups ever cast in bronze. It was originally made for the Medici Villa at Carregi, near Florence, but was placed here later on over the porphyry pedestal and tazza prepared for it under the superintendence of Vasari; and the scintillations of light reflected from the surface of its basin into the gloom of the corridors and the quiet tinkle of its falling water add much to the charms of this delightful courtyard.

In a niche opposite the entrance from the Piazza delle Signoria, and not at first perceived in the shade, is Vicenzo de Rossi's group of, according to Nagler, Hercules and Anteus, but more probably, Samson and a Philistine, mainly interesting from a supposed likeness of the latter to, and said to be an intentional caricature of, Michel Angelo.

The cortile of the Palazzo Vecchio, apart from its artistic beauty, is of the greatest possible interest to the student of Florentine history, since the events in its construction coincide with episodes of vast importance in the annals of the city. The first of these was the erection of the Palace by Arnolfo di Cambio in 1298, at the moment when the complete control of affairs had passed into the hands of the merchants, represented by the *Priori dell'Arte*, who were to be lodged in the new building for their greater magnificence and security. This was the period referred to by Macchiavelli when he said, "Never was a town more happy and flourishing." The second and equally momentous episode occurred about a hundred and thirty years later, when Michelozzo was called upon to remodel the Palace so as to make it a fitting residence for his friend and patron Cosimo de' Medici on his return from exile, when he commenced the era in which he, to quote the words of J. A. Symonds, "with commercial cynicism enslaved Florence by astute demoralisation." But the third episode, after the lapse of about the same period, marked a deeper degradation, for in the year 1565, when Marco da Faenza decorated the cortile, was celebrated the marriage of Francesco de' Medici with the Emperor of Germany's daughter, which eventually brought upon Florence that long period of ruthless tyranny which it had to endure under its Austrian Grand Dukes.

THE premiated designs for the baths proposed to be erected by the Newcastle-on-Tyne City Council at Benwell, Walker, and Heaton will be on exhibition in the Concert Hall, Town Hall, until January 18.

BUILDING BY-LAWS WITH SPECIAL REFERENCE TO THE B.C.A. BILL.

A MEETING of the British Constitution Association (Office, 11 Tothill Street, S.W.) was held on Friday, the 19th inst., at Caxton Hall, Westminster. Mr. W. D. Caroe, M.A., F.S.A., F.R.I.B.A., occupied the chair.

Sir William Chance, Bart., Chairman of the Committee, read the following paper on the above subject:—

The history of building by-laws was very well dealt with in the able and interesting lecture given by Mr. R. Macdonald Lucas before a meeting of the B.C.A. on April 25, 1910, and which was subsequently published by the committee in pamphlet form.* They go back at least as far as the date of the Great Fire in London. I am not, however, going to-night to deal with building in London, which under the Building Act of 1894 is carried on without much complaint; nor with building in large towns, but with building in rural and semi-rural districts only, because it is with such districts that the Bill of the Association is specially concerned. Under the Public Health Act of 1875, sect. 157, and the Amendment Act of 1890, sect. 23, every urban sanitary authority can make by-laws with respect to streets and their sewerage and to the structure, ventilation, drainage, and sanitary arrangements of new buildings, and to the submission of plans. The Public Health Acts Amendment Act of 1890 (sect. 23) empowers rural sanitary authorities to make by-laws with respect to the structure of walls and foundations of new buildings, for their ventilation, drainage, and sanitary arrangements, and for the structure of floors, the height of rooms to be used for human habitation, and water supply for closets, and for the submission of plans. In the case of both urban and rural sanitary authorities the by-laws must be confirmed by the Local Government Board before they can come into force (Public Health Act, 1875, sect. 184).

As is usual when any by-laws and regulations are not laid down in an Act of Parliament, but left to the public bodies whom they affect to draw up, the particular Government Department concerned is itself forced to draw up the rules, and so the well-known model by-laws with respect to new streets and buildings were issued in 1877. This model went into the minutest particulars as to how new houses were to be built and streets laid out. When the Act of 1890 was passed, and a rural sanitary district had decided to have building by-laws, this urban code was forced upon them without any regard for the different requirements of country and town. "You must take this or nothing" was the official reply. Naturally this model series caused great dissatisfaction when owners, builders, and architects had to work under it in country districts, where the conditions in relation to materials for building, drainage, sanitation, and ventilation vary so much. Besides this, the fact that some parishes were free from by-laws, while others were subject to them, even in the same sanitary areas, added fuel to the flame of discontent. Now when an Englishman discovers a grievance he generally looks out for others who feel it too, and thus an association came into being which united some of the malcontents to work together for its removal. This was the origin of the Building By-laws Reform Association. I have heard it said that the only reform which this particular Association effected in building by-laws was the omission of the final letter of the word *bye* in its title. I hope to show that it did much more than this, that it did help towards getting sets of by-laws drawn up to replace the urban model in rural districts, that it roused public opinion on the matter, and that it was successful in getting a special committee of the House of Lords appointed to examine into a Bill which it had drawn up and which passed through that House in an amended form, to which the Committee of the B.B.R.A. agreed, with no opposition whatever. This is the Bill which that Association bequeathed to the B.C.A. in its last will and testament of 1912, and which legacy our Association gratefully accepted, and we are prepared to continue the work of that Association, whose objects "to secure that official control of private buildings shall not extend beyond the demands of public health and safety, and thus to prevent encroachments on individual liberty," falls entirely within the scope of our work.

* "Building By-Laws," by R. Macdonald Lucas. (P. S. King & Son, Westminster, S.W. Price 6d. net.)

I will digress here for one moment. We had hoped that the late Hon. Secretary of the B.B.R.A., Mr. R. A. Read, who worked so hard on its behalf, would have been the reader of the paper to-night. He was invited to do so, but pleaded ill-health. You will all be sorry to hear that he died shortly afterwards.

Almost contemporaneously with the formation of the B.B.R.A. appeared a new model set of building by-laws which the pressure of public opinion had forced the Local Government Board to draw up. I well remember one of the members of our Committee arriving at a meeting, at which they were considering by-laws, with a copy of the new model in his hands and exclaiming, "Our work has been done for us." Certainly the new series was a great improvement of the old model. In the memorandum which prefaced it the Board stated that representations had been made to them that it would be useful if a series of model by-laws were framed, dealing only with the subjects which were most in need of regulation and control in a rural district from a sanitary point of view, and omitting the additional requirements usually found in a code of by-laws in force in an urban district. The Board had, therefore, drawn up the accompanying series of model by-laws. They were confined to matters affecting health, and were limited to:—

1. The structure of walls and foundations of new buildings for purposes of health;
2. The sufficiency of space about buildings to secure a free circulation of air;
3. The ventilation of buildings;
4. The drainage of buildings;
5. Water-closets, earth-closets, privies, ash-pits, and cess-pools in connection with buildings;
6. The closing of buildings unfit for human habitation;
7. The keeping of water-closets supplied with sufficient water for flushing;
8. The observance and enforcement of such by-laws by requiring notices and plans.

The memorandum then went on:—

"The Board are not in a position to advise as to what by-laws are needed in particular rural districts. The responsibility rests with the Rural District Council in each instance of determining on consideration of the circumstances of their district, what by-laws (if any) they will propose to make. The model is intended to serve as a guide to them in dealing with the most important sanitary requirements in connection with new buildings. It must not be regarded as excluding the adoption of further provisions, where these are found to be necessary, dealing with the other matters mentioned in Section 23 of the Act of 1890, or in Section 157 of the Act of 1875. Portions of many rural districts are distinctly urban in character, and the development of building is constantly changing the aspect of the country, and it devolves on Rural District Councils to endeavour to apply to the several parts of their districts such regulations as the circumstances may from time to time seem to require. The present series contains no clauses dealing with questions of stability on the prevention of fire, or with the level, width, and construction of new streets. These are all matters that may properly be regulated in portions of rural districts which are assuming an urban character, and circumstances may arise which may render it necessary to deal with one or more of them even in less closely populated areas. Where more comprehensive by-laws are considered to be necessary for the whole or any part of the district, the Rural District Council may be referred to the model series prepared for use in urban districts. They should carefully study the clauses and select those that are appropriate to the needs of the district, or the portion of it under consideration. In this connection it may be mentioned that a series of by-laws may be made for part only of a contributory place where the circumstances justify this course. The part should, however, be very clearly defined by a well recognised boundary line."

The part of the new model relating to the structure of walls and foundations did away with a host of irritating details, and is such that every honest builder would accept. As to the other matters dealt with, the Committee of the B.B.R.A. went very carefully into them, suggesting important alterations in many particulars. Those alterations were incorporated in the new model, together with the reasons why they were recommended, and were published in the form of a memorandum in the second annual report of the Association. The B.C.A., indeed, might do a useful work, if the necessary money was forthcoming, in republishing this memorandum

Every credit must be given to the Local Government Board for their efforts to get the new code adopted in those rural districts where the old by-laws were in force. Then in 1906 they drew the special attention of Rural District Councils to the matter, and recommended them to carefully review the circumstances of their districts for the purpose of seeing whether any modification of the by-laws in force was desirable, and whether any part of the districts might not be more suitably placed under the new code, either wholly or supplemented by certain clauses from the urban model. And in 1912 another circular letter to the same authorities was issued to the district councils (urban as well as rural) to the same effect, but more forcibly worded. Further than this, another series of building by-laws was drawn up and circulated, intermediate in character between the urban and rural model codes.

The B.B.R.A. always felt that any effort to get rid of building by-laws would be time and money thrown away, and so they looked about to see how they might be made more elastic in their operations, so as to do away with the injustice and hardship that the enforced strict compliance with the exact letter of them so often created. They decided that this could only be effected by legislation. Consequently they had a Bill drafted, the main objects of which were to exempt buildings sufficiently isolated from other buildings from the operation of existing and future building by-laws except as to those dealing with drainage and sanitary conveniences, and to empower the Local Government Board to disallow existing by-laws or any clause of them which could be shown to be unsuited to the district to which they applied, or to operate contrary to the public interests. This Bill, which was published in the second annual report of the Association, was introduced into the House of Lords by Lord Hylton in 1905, and was referred to a Select Committee, which sat for six days taking evidence. It emerged from this ordeal in an amended form, and passed through the House without opposition on August 8 of the same year. In the following year Lord Hylton again introduced it into the House of Lords, and after certain amendments, which the Association considered improvements, was read a third time with the full approval of the Government. The reasons for and the objects of this Bill, which has been taken up by the B.C.A., and is entitled "The Public Health Act (Building By-laws) Bill, 1906," are well explained in a memorandum which was attached to it as follows:—

"This Bill, while admitting the need for building regulations, also recognises the fact that, as they operate at present, these regulations often inflict unnecessary injustice and hardship upon owners and builders, and stand in the way of the erection of cheap and yet substantial and healthy dwellings for the working classes.

"The Local Government Board have also recognised this fact by drawing up a new code of building by-laws more applicable than the old model by-laws to the wants of rural districts.

"But it is clear that whatever the code may be, it is quite impossible for it to meet the particular needs of every case. A by-law which operates quite justly in one case will in another inflict hardship and injustice.

"The Bill in question proposes to introduce just that elasticity which is so much needed into the operation of building by-laws. And at the same time it carefully provides that nothing shall be done contrary to the interests of the public health.

"Clauses 2 and 3 propose to do for rural districts where building by-laws are already in force what can already be done in London. They provide for the exemption of isolated buildings—i.e., buildings which have a minimum of open space surrounding them—from certain of the by-laws which may be in force in the districts where such buildings are to be erected. But they do not exempt any buildings from the by-laws relating to drainage and sanitary conveniences.

"Block plans as to these matters will still have to be approved by the local authorities, but above ground a man will be free to build as he likes so long as he does nothing contrary to purposes of health. The general control of the local authorities is thus preserved, and in case of a conflict of opinion on the point the Local Government Board is constituted the arbiter.

"An indirect advantage on which the promoters of the Bill lay much stress is that landlords and builders will be encouraged for the sake of securing greater freedom of building to provide dwellings for labourers and artisans with sufficient ground attached thereto for the purposes of

gardens. It is hoped that the crowding together of cottages without any adequate garden ground, which the present by-laws encourage, will be discouraged by the Bill, and the lives of workers who can only afford to pay small rents made more happier and healthier than at present.

"Clause 3 is directed against improper advantage being taken of the increased liberty in building for which clause 2 provides.

"Clause 4 provides for bringing this part of the Bill into operation in urban districts.

"Clause 5 is very important and applies to urban as well as rural districts. As has already been said a by-law may be quite inapplicable and unnecessary in particular cases. This clause enables the local authority by means of a very simple and inexpensive mode of procedure to dispense with the requirement of any by-law where its enforcement is clearly unnecessary. In ninety-nine cases out of a hundred the parties will be in complete agreement as to the non-necessity for its enforcement, and the proceedings will be of a friendly nature."

(Note.—This procedure is by application of the aggrieved person to a court of summary jurisdiction that it should allow the particular by-law to be dispensed with or varied in the particular case.)

"Further than this, the same clause removes a grievance which is very much felt at the present time. Thus, supposing there is any conflict between a local authority and a builder as to whether a plan, or the building exhibited thereon, is in conformity or not with any by-law, the matter can be settled without delay. At present in case of any such dispute, it can only be determined by the building being erected in defiance of the by-laws, and then if the view of the builder is not upheld by the Court, the building may be condemned, and possibly ordered to be pulled down. A great deal of expense and bad feeling would be prevented if such questions could be determined once and for all upon the plans when they are submitted.

"It is contended that the Bill preserves all the powers which a local authority requires for preventing the erection of insanitary buildings, and gives just that elasticity in their operation the want of which constitutes so just a complaint at the present time.

"In conclusion, it must be mentioned that the Bill has the support and sympathy of the Local Government Board, the promoters having accepted the amendments proposed by the Government during the passage of the Bill through the House of Lords."

The Bill has never been before the House of Commons. The fact is that opposition to it was raised in an unexpected quarter by the executive committees of the Urban and Rural District Councils Associations, which are sufficiently powerful to give effective opposition to any private Bill affecting these Councils passing that House. Negotiations between the B.B.R.A. and these Associations followed, and the draft of a new Bill was agreed to, but with so much disinclination on the part of the Association that it was never proceeded with. The way is now therefore open to the B.C.A. to take up the original Bill, and, I hope, to carry it triumphantly through Parliament. Until some such measure is passed into law the field of building by-laws administration will remain open to jobbery and corruption. It is also well known that these by-laws are broken or not enforced over and over again where their enforcement is distinctly unjust and unnecessary. This fact was admitted in the recent case of the Chelmsford Rural District Council *v.* Mr. Arnold Mitchell. This gentleman has made himself famous by designing a cottage which can be built for £110. He had built one at Great Baddow for exhibition purposes only, and he thought that he need not submit plans to the authority. Unfortunately it did not conform in several respects to the by-laws, and so he was summoned before the magistrates and duly fined. It appears from the evidence that the Council was advised by their clerk not to prosecute in the case. He told the Council that if they went on with the prosecution it might be thrown in their teeth that the Council were acting with vindictiveness, as there had been a number of similar cases in which proceedings had not been taken (*Times* of November 29, 1913). It is not the least advantage of our Bill that it will when passed into law put an end to such practices, and I am certain that we shall then have fewer complaints than now of unnecessary hardships inflicted upon persons who are doing their best to improve the housing conditions of our country.

I have referred to the efforts of the Local Government Board to secure more elasticity in the administration of the Building By-laws, and I cannot bring my paper to a con-

clusion without a reference to section 44 of the Housing and Town Planning Act, 1909. It was inserted in the Bill at the instance of the Rural Housing Association, and provides that if the Board is satisfied that the building of cottages is unreasonably impeded by any local by-laws, the Board may have them revoked or require the local authority to make new ones so as to remove the hindrance. If this is not done in three months the Board may make by-laws and enjoin their use by the local authority.

This section will no doubt be useful where a number of cottages is intended to be built; but it is doubtful whether, owing to the delays which must occur, it would be of much value in the case of a single cottage being built; and, of course, it does not apply to the building of houses other than cottages.

The following communication from Mr. W. Clough Williams Ellis was read to the meeting:—

One would imagine that certain matters the District Council building by-laws were framed to regulate would by this time be clearly and definitely recognised as (from a structural and sanitary point of view) either right or wrong. However, even a cursory survey of the regulations in force (happily not always enforced) in even half a dozen adjacent areas clearly shows that the District Councils, who are the by-law arbiters, have no certainty in these matters, and what may be approved on one side of a road may be utterly condemned on the other.

A point, for example, on which there seems to be no sort of agreement is whether or no an earth closet should or should not be admitted into the same block and under the same roof as the dwelling.

If such questions as these, that are in no way dependent on local materials or other site conditions, could be finally settled one way or the other, it would make "model" cottage plans of far wider general use as examples than they can be now through making them more generally applicable.

The severity of the building by-laws in force seems to bear little relation to the situation and conditions of the district. Thus around Guildford, which will soon be indistinguishable from Greater London, many districts are entirely free of any restrictions whatsoever. Whilst a wild and outlandish district of Shropshire, where I have recently been building, has the most repressive set of regulations that I have yet come across, imposingly bound up in the likeness of a Government Blue-book.

There seems to be little doubt that some Rural Councils are merely "printing-proud," and distrusting their own judgment (not without reason), feel they can't be wrong if they adopt a real good bookful of by-laws "as used in Birmingham" or elsewhere.

This wholesale "cribbing" is sometimes "given away" by recondite regulations for the conducting of certain dangerous or noxious trades escaping the blue-pencil and being inserted in the by-laws of a district where such industries would be an impossibility.

A large part of the building by-laws are simply concerned with stability and durability, dryness, and fire-resistance—matters that any house builder will carefully attend to for his own sake without compulsion and inspection. So long as the right of condemning a building as insanitary or insecure, on certain well defined grounds, is reserved to the authorities, the impeding red tape of building regulations might well be cut away.

I am persuaded the most satisfactory results are obtained where there are reasonable sanitary regulations (as against structural) administered by a keen and intelligent inspector responsible to a representative council that is content to act on their expert's recommendations only.

Such a combination is unhappily rare.

I have had "mansard" roofs refused sanction through the local surveyor reporting that the lower and steeper slope of roof was nothing more than a wall in disguise—slanting, no doubt, but still a wall—and as such unallowable save in 9-inch brickwork! My clients would not contest the case, though, of course, almost every other London house is so roofed; and I was forced to provide worse roof rooms at a considerably greater cost.

Some surveyors are certainly not aware of the difference between a modern earth closet and the traditional privy. Whilst there seems no uniformity in their method of calculating cubic content, window area, and the like. Only once have I come across by-laws that paid any regard to the really important question in fenestration—viz., the height of the windows relatively to the floor and ceiling; the stock

formula for size (one-tenth floor area) is all that they usually concern themselves with. If your window is too small to satisfy this arbitrary condition all you need do is to reduce the air space (and floor area) by partitioning off a cupboard, or what not, and lo! you have satisfied the authorities by contriving a less airy room to make up for alleged lack of window.

The question of drainage, too, bristles with uncertainties. What is allowed in one district is anathema in another. One is, perhaps, compelled to put in an expensive cesspool when it is demonstrably clear that it is against all sanitary sense, and that direct irrigation would be far better as well as cheaper.

In the matter of structure the anomalies are of course notorious, many excellent expedients and materials being barred in the depths of the country, simply because there may be certain objections (often problematical) to their employment in towns.

Some rural districts still insist on window frames being recessed in brick reveals, though this quite futile regulation (framed a century or so since in London with the idea of lessening danger from fire contagion in narrow streets) has now been repealed by all the Metropolitan authorities.

Timber framing and plaster walls are taboo on the same grounds; whilst recently, when building a little one-storeyed bothy for garden lads in the midst of a large park far away from any other buildings whatever, the Council, the slave of its grotesque building by-laws, forbade the use of thatch "on account of danger from fire."

I have sometimes thought that a map of England, showing the by-law-ridden areas in yellow, as for plague, if widely circulated would be salutary as a sort of Black List, tending to deflect building activity from those areas, and eventually forcing them into line with more enlightened districts.

DISCUSSION.

Mr. Mark Judge, in opening the discussion, said that so far as the British Constitution Association was concerned the fewer building by-laws there were the better. Instead of being bound by regulations, people ought to be made to realise their own personal responsibility in the matter. As a consequence of the present state of affairs people generally think no necessity exists for them to do anything for themselves when taking a house, and they fail to get even their sanitary arrangements inspected. The existing by-laws in that way defeated their own end. The attitude of the public authorities arose out of the fact that they were their own critics in this matter. The present procedure was altogether wrong. It ought to be sufficient for someone of recognised capacity and knowledge in regard to these matters, such as architects and engineers, to certify the conditions of the premises in order to get them accepted as passable. Some years ago a Bill was introduced for the purpose of giving professional men and other competent people such a right to freedom from interference. By so doing they could have better buildings at less ultimate cost. If the B.C.A. could do anything to press this matter before Parliament it ought to do so.

Mr. Houston argued that reform should be along such lines as would make by-laws as elastic as possible, and that this could be best achieved by divorcing the inspection of buildings from the people who passed the plans. The inspection might be left to the present officials, while the plans would be passed by an architect. Probably a single architect could deal with the plans for an entire county. At present when plans are submitted for approval they are turned over by the surveyor to his assistant, who sets himself out to find fault. The building could be none the better for discovering the most minute infractions of the regulations. Another serious point was the way in which officials were thus rendered liable to corruption; in some districts this evil was rampant. There should also be a right of appeal from the inspecting official to the body who passes the plans.

Miss Churton agreed as to one of the great requirements being that by-laws should be made elastic. There was already a strong movement in that direction. Of the 655 rural districts in England and Wales there were still 180 without by-laws; the urban model was followed in 139 and users of the rural model had risen during recent years from 106 to 205. These figures showed a move in the right direction. There remained now only about 30 per cent. of the rural districts which followed an urban model.

Mr. Lawrence Weaver thought the real question was—"Which by-laws are best for public health?" On this

point there was a serious divergence of opinion. He had recently been examining the by-laws of seventeen different districts, and he found that only in three of them were there any regulations to which there was reasonable excuse to object. The question of public health seemed to him to be bound up in the question of cubic contents, and the most vital thing was to make sure they got sufficient cubic contents in the bedrooms. The accepted minimum of 500 cubic feet per adult and 250 feet for each child was in practice almost too low. It was a novel idea to him to hear that it would be wise to leave the sanitary arrangements to the members of the Royal Institute of British Architects or to the civil engineers as being necessarily qualified to deal with them. With all due respect to the former body, of which he was an honorary Associate, he believed such a course would be very dangerous. Recently he had inquired of the Secretary of the Royal Institute if he had received any complaints from members as to hardships involved by building by-laws; the Secretary could not recall any during the past four years or so.

Mr. W. D. Caroe, the Chairman, in taking up the last point of Mr. Weaver's remarks, said it had never occurred to him to go to the Secretary of the R.I.B.A. for redress when he had had cause to complain, as he frequently did have, against any by-laws. That official was too busy to deal with the matter. A complete set of by-laws reduced the responsibility of an architect or builder to nothing. Consequently it created, or rather tended to create, men who did not understand the subject of drainage. Personally, though an architect, he claimed to understand more about the subject than most sanitary authorities. He heartily supported the suggestion that it would be better if professional men were made more responsible. Better results would then be obtained. The officials in rural districts were not the class of men to deal even with a drainage scheme on its merits and they lacked the competence to say what was the right thing to do in any special case. All they could do was to administer the law in a wooden-headed way, whether or not it applied to the particular circumstances. He could mention dozens of cases where even drainage schemes carried out under the regulations were worse than if the regulations had not been enforced. He himself lived in a house which contravened almost every rural by-law; fortunately for himself he resided in a district where there were no rural by-laws, and they were able to build decent houses. In this matter they had a sympathetic individual in Mr. John Burns, and so he ventured to suggest that the British Constitution Association could not do better than organise a deputation to Mr. Burns and endeavour to get his sympathy for their Bill. Rural housing was a question of the moment, and the B.C.A. Bill was, in his opinion, admirable.

Sir William Chance, in replying to the vote of thanks, said when he built his house he had been cut up in all sorts of ways by local officials; indeed, it was that which caused him to take the question up. He could not conceive anything more confusing to architects than the wide variations in building by-laws, and their complaints to clients were quite understandable.

SOME PROBLEMS IN DAYLIGHT ILLUMINATION, WITH SPECIAL REFERENCE TO SCHOOL PLANNING.*

By PERCY J. WALDRAM, F.S.I.

(Concluded from last week.)

Available Rules and Data for Daylight Illumination.

Various attempts have been made from time to time to define the essential conditions of good lighting, but the different rules or approximations advocated seldom agree with each other, they do not allow for varying conditions, and none of them, as far as the writer is aware, define any definite minimum or test illumination. In this country the minimum requirements of the London Building Act—viz, a glass area of one-tenth of the floor area for vertical lights and one-twelfth for skylights—are frequently adopted as maxima, and the now discarded rule for schools of a glass area of one-fifth of the floor space for vertical lights is equally respected. As regards permissible obstruction by surrounding buildings, a limiting angle of 45° from a horizontal plane is often regarded, *faute de mieux*, as the criterion of reasonable obstruction.

* Abstract of a Paper read at a meeting of the Illuminating Engineering Society held at the House of the Royal Society of Arts, John Street, Adelphi, London, W.C., on December 16.

One of the first and most comprehensive investigations on the subject was carried out by Dr. Basquin in Chicago in 1898-9. Many years previously, in 1865, the late Mr. R. Kerr in England endeavoured to determine the relative value of different portions of the spherical quadrant of the sky visible from any vertical window, and his values are adopted in Molesworth's "Obstruction to Light," a book published in 1902. Unfortunately these were evidently based upon insufficient data and are quite contradictory to the results of modern investigations, crediting low angle light with greater values than light from high angles. If the sky hemisphere were divided into angular divisions by means of lines corresponding to celestial lines of latitude and longitude, such lines could only be viewed in one direction at a time, and only one of the degrees of longitude would be vertical and the remaining vertical lines would be inclined, whereas vertical buildings to the right or left of the eye would not. For this reason it is not possible to draw the essential lines which show the divisions of the visible sky on an ordinary photographic view and to deduce the loss of sunlight or visible sky therefrom. An opening in a vertical plane, unlike the eye or the camera, can receive light from nearly 180° of sky horizontally and nearly 90° vertically, and it looks in all directions simultaneously. The loss of actual visible sky area which is inflicted on it by any building can only be obtained by projecting that building on to the sky. During last summer Dr. Kerr suggested the use of a view-finder in connection with the inspection of school lighting, and made an instrument which enabled empirical values to be given to each element of the field of vision. These values were those indicated by the well-known cosine law and could not be readily varied, whilst the picture was an ordinary flat photographic impression. Developing this suggestion, the writer, in co-operation with Mr. Conrad Beck, has recently succeeded in devising a view-finder which shows simultaneously the total visible hemisphere of sky subtended at a window divided into angular degrees and the extent to which such sky is blotted out by buildings. The saving of time which this instrument effects in ancient-light cases is enormous. Aspect diagrams giving all the angles and planes can be drawn in a few minutes.

If we knew what relative values to attribute to each different element of sky, and what total value was essential to good lighting for any given purpose, we could tell at once either by observation in the case of existing buildings or by ordinary geometrical projection in the case of new designs whether any window were unduly obstructed. By similar observation or projection from inside a room lit from a sky which had a given net lighting value left to it by surrounding buildings, it should be possible to determine:—

(1) The size and shape of glass area requisite for the worst parts of the room.

(2) What parts of a room were or were not reasonably suitable for any given purpose.

(3) What annual extra expenditure of artificial light would be involved by any given obstruction to maintain a given minimum during working hours.

(4) To what extent (3) could be mitigated by altering the height of window heads or the colour of walls and ceilings.

As will be shown later, it is possible to determine (2) and (3) by direct photometric measurement of the ratio of inside or outside light, and to determine or predetermine (1), (2), (3), and (4) by direct photometric measurements on models, but photometric measurement in actual rooms is only applicable to existing conditions and is useless for predetermining prospective conditions or for the retrospective comparison of light formerly enjoyed unless the latter has been recorded; whilst model tests, invaluable as they are in ancient light cases, are too tedious and expensive for many purposes. Painstaking investigators, apparently at least, have failed in many cases to co-ordinate their findings with any definite standard; and in others to appreciate that the good or bad lighting of a room depends simultaneously upon at least three conditions and not upon any one of them. These are:—

(a) The extent or lighting value of the outside sky; (b) the height of window head; (c) the breadth and distribution of glass.

As a basic proposition it may be stated that a certain height of window head is essential to the proper lighting of a given depth of a room, while a certain width and distribution of glass is similarly essential to the proper lighting of

a given width of room, and that both depend upon the lighting value of the unobstructed sky enjoyed by the window, vertically and laterally. The fallacies of the rough rule making the glass area a certain proportion of the floor area are now generally recognised.

The most important point with regard to existing recommendations is the frequently recurring suggestion that a minimum of sky must be visible from every point of a classroom. Much as one would desire it, this is obviously not essential to good lighting. No one could reasonably assert that English elementary school classrooms, constructed under the rules of the Board of Education, in towns, with an angle of obstruction by surrounding buildings of 30° are improperly lit. Yet in such rooms one can only see the sky at the back of the room by lying down on the floor, and in no class of building with vertical lights is it customary to have such large high windows as in elementary schools. The fact that this devalues the result of such a large amount of continental experimental research is regrettable, but facts must be faced.

In a paper read before this Society in 1911 on the effect of wall and ceiling reflections a couple of simple devices were described which are somewhat useful in the practical study of daylight. One is a means of testing under artificial light the accuracy of any illumination photometer used, other than in a laboratory. If a standard candle be lit and placed one foot from a card in an ordinary room, part of the illumination on the card comes by reflection from the walls and ceilings. This can be measured by screening off the direct light from the flame of the candle with a very small piece of dark card; the illumination then remaining on the card is that due to reflection and diffusion, and when deducted from the first reading leaves the direct light which the card would receive in a proper photometric laboratory with black walls and ceilings.

Similarly the proportion of daylight enjoyed at any part of a room which is reflected from walls and ceilings can be ascertained by measuring the illumination existing in the shadow of a small black card interposed between the window and the point under consideration.

The writer has also carried out some successful tests to establish the reliability of a suggestion which he made some years ago to the effect that the daylight illumination of a room is the same as that which can be viewed inside any exact scale model of that room facing the same sky and the same obstructing buildings.

Data still required for the Solution of Problems of Daylight Illumination.

(1) *Minimum Illumination.*—Photometric data is needed to determine the value in foot-candles of minimum natural illumination required by average persons. It naturally varies for different purposes.

(2) *Minimum Ratio of Inside to Outside Illumination.*—Some years ago the writer suggested that owing to the large and often rapid fluctuations of daylight, the only exact photometric standard one could take was the ratio of the brightness of the zenith sky to the inside light; and that the only standard, without instruments, was the inside illumination enjoyed at sunrise and sunset on clear winter days, at which times the zenith sky is of at least approximately similar brilliance. This is really a very low criterion, the brightness of zenith blue sky being then only about 100 foot-candles in round figures. It is seldom darker than this between sunrise and sunset, and is generally much brighter, even on wet days, in winter in towns. Between sunset and sunrise, or when the sky is, in abnormal weather, darker than 100 foot-candles, it would appear to be unreasonable to expect any room to be lit by daylight.

For offices and domestic apartments the following ratios were suggested—viz.: That the requirements of ordinary comfort cannot be said to be infringed at any point where it was possible to read at sunrise and sunset on a clear winter day. This is equivalent to a ratio of 0.1 per cent. (1/1000) of the light derived from a small portion of the zenith sky. 0.2 per cent. of the total light from an unrestricted full hemisphere of sky of the same brightness, such as would be observed on a white card placed on a roof under a uniformly grey sky, and 0.4 per cent. of the illumination falling on a white card on the window sill with a free horizon.

For schools it would appear that the desirable minimum is somewhat in the neighbourhood of two and a-half times as much as in offices—viz.: That the darkest desk should receive two and a-half thousandths (0.25 per cent.) of the zenith light, 0.5 per cent. of the roof light, or 1 per cent. of the light on the window sill with a free horizon.

This is equivalent to saying that at sunrise or sunset in

a clear winter sky, or at other times when the sky has an apparent brightness of roughly 100 foot-candles, the worst part of an office should receive a minimum of one-tenth of a foot-candle and the worst desk in a school one-fourth of a foot-candle.

(3) *Relative Lighting Value of Different Elements of Sky.*—This important and even fundamental data can be most easily obtained by placing a large spherical wire cage outside the window of different model rooms, and ascertaining the effect upon any given part of the interior produced by blocking out alternate angular divisions of sky. Possibly the relative values thus found might be identical for all ordinary conditions, possibly certain elements might be more valuable in some cases than in others.

Only when we really know the different lighting values of different elements of sky can we determine what degree of obstruction will affect any user of given premises. The determination of this obviously affects huge sums, not only of private expenditure, but also of public funds, as in the case of schools, where it is often necessary to determine whether old buildings shall continue, whether they can be improved or must be rebuilt on a new site, and whether they may be extended on the same site to cope with the needs of growing districts.

Relative Values of Window Space in Different Positions.

The collation of sufficient data to determine this problem from actual rooms would be a stupendous task, and it is indeed fortunate that the daylight conditions of rooms are exactly repeated in scale models in which the effect of different arrangement of window space, wall surfaces, and sky obstruction can be studied at a minimum expense.

The data at present available gives uniform indications that for table or desk illumination a vertical window can only be safely called upon to light a depth of room equal to twice the height of the top of the glass from the table or desk height—viz.: The space lying below a plane which forms an angle of $26\frac{1}{2}^\circ$ with the horizontal from the top of the glass. This, of course, is only in accordance with the ordinary proportions of well-designed rooms.

Taking the table height at 3 ft., such a rule would work out as follows:—

Height of Top of Glass above Floor, Feet.	Width of Room Lighted, Feet.
9	12
10	14
11	16
12	18

For schools, an angle of 30° would appear to be preferable.

For windows with northern aspects, it also appears that within these horizontal limits of the reasonable range of a window, sky obstruction generally makes very little difference, if any, up to about 60° with the horizontal, measured upwards from the sill; but in portions of a room beyond the proper range of a window the light drops so rapidly that they are sensibly dark by comparison, and actually so in dull weather even with a free horizon. Exact data on this point can be obtained both from experiments on models and by noting the effect of lowering dark blinds in any room.

The Value of Light Reflected from Walls and Ceilings.

With regard to this important point, the amount of experimental data available is very meagre. Tests of the daylight illuminations on a card placed at different parts of rooms first when unobstructed and then when shaded with a small card which just blocks out direct light from the window glass, and leaves only the reflected light tend to show, as would be expected, that at and beyond the "effective range" of a window, light reflected from the walls and ceilings, especially the latter, is a much larger proportion of the total light available than it is in positions nearer to the window, although it is naturally greater there.

Additional Artificial Light Involved by Lowering the Daylight Illumination of Rooms below a Given Standard.

When we are in possession of large-scale time charts showing the average daily variation of daylight, it is a comparatively simple operation to state the average daily number of minutes over which artificial light is required to maintain any given minimum daylight illumination at any point in a room, provided we know or can measure the proportion of the outside light enjoyed by that point. For example, if a worker at a table requires artificial light when the natural illumination falls below one foot-candle and the table receives one-thousandth of the outside light, then a diminution of 10 per cent., whether it be caused by dark walls or ceilings, dirty glass, obscured window heads, or the

raising of surrounding buildings, involves extra consumption of artificial light every morning and evening during the average time which the outside light takes to vary from 1,000 to 1,111 foot-candles. If this average works out to twelve minutes over the year, then the total average loss at sunrise and sunset is $\frac{24 \times 365}{60} = 146$ hours per annum.

The actual loss for most purposes is, of course, very seldom experienced at more than 300 sunsets per year, or sixty hours per annum, and is frequently less than that. Taking the area lit by an average window as equivalent to that lit by a 50-watt lamp, then only three units of electricity would be involved. It is obvious that any such computation must generally work out at a very insignificant annual sum, and the plaintiff in an ancient light case would seldom be content to value in such terms the loss to his amenities. On the other hand, he generally anticipates that any prospective loss is going to be much greater and more material than it really is.

School Lighting.

The general treatment of this wide subject has left but little space in which to deal with the special branch of school lighting, upon which an eminent architect only a few years ago stated that nothing remained to be said. Yet a committee of this Society, who are extremely enthusiastic and energetic, after having been at work for nearly a year, are still compelled to devote most of their time to the devising of labour-saving systems by which to reduce the great mass of work which still lies ahead of them. Many of their problems have already been indicated, but in addition they have to solve questions relating to unilateral and bilateral lighting, the effect of borrowed lights, the maximum variations between the lighting of various desks, the cure of badly lit existing schools, and the effect of the standing regulations of the Board of Education. Let it be said at once that the latter are in many ways most excellent, and the lighting which they secure in new schools is often all that could be desired. But they do not recognise, however, in their sweeping denunciation of skylights, that in spite of the danger of leaking these are of enormous lighting value, and can, and do, form a most valuable means of curing at slight expense defects in lighting quite sufficiently atrocious to demand the closing of a school. The regulations also do not differentiate between skylights and lanterns or high dormers; and the emphatic denunciation of front lights is also, to say the least, open to question, at least in cases where the sill is fairly high and the aspect is not sunny. Most of us work facing a window when we can do so.

ENGLISH NEO-CLASSIC ARCHITECTURE.—V.

THE two concluding lectures of the course of ten which was given by Mr. A. E. Richardson, F.R.I.B.A., under the auspices of the Carpenters' Company at London University, Gower Street, W.C. (of which reports have appeared in previous issues), were delivered on December 11 and 18.

LECTURE IX.

THE CLIMAX OF CLASSIC ARCHITECTURE IN THE NEO-GREEK AND ITALIAN PHASE.

The nineteenth-century spirit in England began with the reign of William IV. and closed with the death of Queen Victoria. Its cycle records one vast assemblage of divergent triumphs, each of immense importance, not only to England but to the whole of the civilised world.

The Classic spirit common to the courtly eighteenth century ushered buildings into existence mainly conspicuous for their idealistic beauty; those of the nineteenth century were mainly accounted for by questions of practical utility, but such was the reverence paid to the volume of earlier models that the underlying principles of the established tradition were extended with surety of judgment. The changed conditions demanded from both the architects and engineers a breadth of outlook which was scarcely appreciated; there were, however, exceptions to the general rule, and this in spite of the tendency in some quarters to forge steel in semblance of stone.

Many architects took up railway practice about 1845, and some of the finest bridges and railway stations in the country were erected. So great was the fame acquired by British architects and engineers at this juncture that their services were speedily in demand in all parts of Europe. The facial expression for railway structures was almost, without exception, consistently Classic, as in such fine stations as Euston, Newcastle, Huddersfield and Dublin.

Pugin, righteous Goth, indignantly furious with the increasing number of Pagan temples dedicated to Vulcan, published his ridiculous "Contrasts" and depicted the joys of railway travel in mediæval garb. An echo of this outburst occurred in 1870, when Sir Gilbert Scott, for St. Pancras Station, followed the lead of Sir Charles Barry and bedizened a building Classic in plan and form with Gothic jewellery. Cheek by jowl with the reserved Classic tradition, the revived Gothic trailed its way through fifty over-prosperous years of the nineteenth century, forced by the very exigencies of the times to thinly veil its obvious Classic body with a diaphanous gown of mediæval texture, which in progress of years wore to shreds. The Battle of the Styles was terminated by a Goth designing a fine Classic building for the Treasury. The Classic tradition was put to a severe test; but, through the finest examples, maintained its well-being down to a more recent period than is commonly supposed.

Before the Greek phase had completely run its course, a marked change of opinion was expressed in those architectural circles devoted to a furtherance of the Classic spirit. The leaders felt that something more was required in architectural design than mere authority for certain features of a building. The exponents of Classic were unwilling to entirely dissociate themselves from the Greek forms, but they were becoming just as much enamoured of the Italian. The spirit of creative art was in the ascendant, its strong voice, ringing in Paris, was heard by the coteries in London. The message was clear. It ran, "From the old Roman and the old Italian learn a lesson, blend the truths of each with the finesse of Greek art, and ever keep in mind the meaning of the modern age." Almost simultaneously a response was made by Cockerell, Barry and Elmes; others joined the group, and the tradition blazed to great refulgence. Cockerell, whose knowledge of Greek detail and Italian composition was profound, carried the matured Classic back to meet the models of the earlier vernacular tradition. His series of brilliant lectures at the Royal Academy show the trend of his cultured ambition in a way his completed buildings only vaguely hint at. Even when he was forced to lecture on mediæval architecture, he maintained a perfect balance between fact and theory, and constantly kept the picture of modern conditions before his audience.

After the year 1870, and almost concurring with the rise of Nesfield and Shaw, a wonderful aftermath ensued, a later growth of Classic architecture, which connects the main issues of the tradition with the phenomenal developments taking place to-day. The tentative experiments of Norman Shaw and Eden Nesfield were in reality a return to the earlier seventeenth-century phases of the tradition. Norman Shaw endeavoured, by sheer strength of personality, to blunder through to academic Classic; but he made the attempt too late in life. The work of the late Mr. John Belcher, especially the noble frontage of Electra House, shows a finer grasp of the academic theory. The public competitions for the buildings in Whitehall and for various municipal bodies throughout the kingdom, which are among the events of the past fifteen years, have produced nothing more than hybrid Classic which in turn perniciously reacted on the vernacular. Picturesque Dutch, Flemish, French and Spanish importations have been experimented with, only to die prematurely. In addition, we have experienced, during the past thirty years, the phenomenal rise of the Domestic School, characterised at one stage with faulty renderings of provincial Classic, and at another period with an excess of picturesque motifs. And now, only at the beginning of the twentieth century, do we realise that the finer expressions of civil architecture have still to be attained, if competition with the achievement of the past is desired.

No theory is so stultifying to architectural development as that which implies that buildings can only be recognised as good architecture many years after their authors are dead. Such is the excuse voiced against a study of the more recent works of the nineteenth century; but no greater fallacy could be cited. English architects, it is true, are deficient in imagination regarding the planning of great civic conceptions, but the wealth of invention displayed in the composition of civic buildings shows that as a nation we have plenty of material to mould into shape. The prevailing tendency in some architectural circles is to elevate the provincial spirit and to mistake heaps of little-nesses for monuments of eternal glory. There is apparent a lamentable lack of policy at the Royal Academy Schools; no really great training institution, such as a first-class

Power should possess, is in existence, and methods of academic training are undertaken in a haphazard manner. It is an important fact that the majority of the universities are working to improve the existing order of things, but until a National School of Architecture is called into being a critical tribunal is an impossibility.

LECTURE X.

THE CLASSIC TRADITIONS IN AMERICA.

The lines upon which American architecture was to develop had every connection with contemporary events in the motherland, with certain reservations pre-ordained by distance, environment, and new conditions. Through all the phases in its development the English tradition is dominant. The reticent Anglo-Saxon character is, in a sentence, reasserting itself to-day with renewed energy.

The desire for fine architecture for its own sake, for architecture suited to each peculiar expression—nobly ordered, irresistible in its appeal to the intellect—was characteristic of the eighteenth century in England; its spirit was communicated to America at a time when that country was young and impressionable. The colonising Power carried into its new habitat the thought and culture of an established civilisation. For nearly three hundred years new conditions have been at work, modifying and altering the varying influences from the mother country; millions of alien race have fused with the old stock; but still the dominant expression is English. At first, stone forms were translated in terms of timber and—a curious phenomenon—a degree of unparalleled refinement in building ensued which we to-day conveniently name Colonial. No other British Colony presents such tangible evidence of the value of sequence in architectural tradition as that offered by the three stages of architectural evolution in America. To-day we are confronted with a further development based on what is acknowledged to be the indigenous American style. This recent growth, which is the product of the last decade, in its main tendencies aspires to the academic; it borrows freely from Italian and French models, but its sympathies are entirely with the examples of civil architecture built by Englishmen who migrated to America a century ago.

The whole story of the Colonial tradition, of the rise of civil architecture and the enormous advance of modern American architecture, is to-day acting as a stimulating creed to the arts in Europe. It means to England precisely what the artistic activity of the archaic Greeks, who colonised Dorian Sicily, Magna Graecia, and the Ionian cities of Priene, Miletus and Ephesus, meant to the culmination of Hellenistic art in Athens. America, with its unbounded resources, great commercial enterprise, and latterly a closer appreciation of the arts, has awakened in the mother country a fuller desire to improve the art of architecture.

In the early beginnings of the tradition, when the newly-arrived immigrants first erected their small houses, the scarcity of masons, to work stone, brought about the literal transference of stone forms into wood. The Pickering House at Salem, erected in 1649, is a case in point; this design reflects a Jacobean interest. The fact that wood was used at first encouraged an ingenious and rich simplicity of taste which reached its zenith during the great Colonial epoch of the second half of the eighteenth century. The architectural detail of contemporary English work was likewise considerably modified by this general employment of wood.

The eighteenth century brought with it a striving for architectural elegance. Church building was undertaken in brick and timber during the reigns of Queen Anne and the first two Georges, modelled on the churches of Sir Christopher Wren and Gibbs. It should be noted that during the early days of the Colonial epoch, trained architects, such as flourished in England, were practically unknown in America. Stonemasons, carpenters, and bricklayers with well-thumbed copies of Batty Langley's book; doctors and lawyers with Isaac Ware's "Complete Body of Architecture," and others armed with "Carpenters' Jewels" and "Builders' Guides," ministered to the architectural needs of the community. There resulted a complete departure from the Classic precision of English work, but the gain in vivacity of expression more than atoned for any lack of observance of orthodox methods. It appears that the cultured requirements of the old Colonial aristocracy in many instances demanded English joinery. The importation of English furniture by the shipload during the eighteenth century, and especially the finer specimens in

the shape of Chippendale, Adams, and Sheraton, influenced architectural detail very considerably.

The Colonial period is not remarkable for buildings of monumental scale; the erection of churches alone gavescope to the colonists, and such public structures as were required were inexpensive and modest examples of good taste.

Between the period of the war of Secession and the later war of 1812, monumental architecture was developed to express the changed conditions of self-government and officialdom. The majority of the buildings erected at this juncture in the national history were for the purposes of State and National Administration. England still proved the store-house from whence the architectural inspiration poured, although young America's sympathies for the Louis Seize style is discernible.

It is worthy of note that the development characteristic of English architects during the first half of the nineteenth century should have had so remarkable an effect on the architecture of America. The requirements of that time in America for public structures were of such a character as to demand a monumental quality, and it is significant that the same recent Classic structures should, in a measure, revert in type to the earlier buildings of the tradition. The period from 1850 onwards produced such giants as Hunt and Richardson, but progress was not general until the genius of McKim again elevated American architecture to the level of the Academic platform. For the English-speaking race the name of one firm only is of consequence: McKim, Mead & White.

After showing and commenting on examples of this firm's wonderful work, as well as specimens of the Colonial period, Mr. Richardson concluded with a look into the future.

THE FUTURE DEVELOPMENT OF CLASSIC ARCHITECTURE IN ENGLAND.

There is every indication, in the spirit of the present age, of a desire to further academic principles and banish provincialities from the design of buildings. At present we are a long way behind the best of America's achievements, and we are outclassed by the French in their handling of plan problems. Our own tradition of Classic is falsely rendered and but little appreciated, few understanding that the spirit of the tradition alone need be considered, and not a base caricaturing of its finest model. We are again beginning to enlarge our artistic horizon by studying the classical masterpieces of every country, not with a view of exploiting the historical and modern side, but with the greater ambition in mind to emulate and excel those masterpieces which have aroused our cupidity. It is also becoming more apparent that mere picturesqueness or prettiness of effect are not the sole attributes of architectural expression; the laws of form, composition, character and appropriateness need to be fully considered. The chaos of the last quarter of a century is being dispelled, and a way out of the architectural maze is lit by the old Classic truth. In a word, we have considerably advanced since the days of the last century in criticism if not in achievement. The possibilities are illimitable. Scores of buildings which now masquerade under the title of Classic are not even pseudo-Classic. Superfluous trappings and tawdry ornamentation disfigure the majority of modern buildings. One may particularly refer to those cart-loads of rubbish, broken pediments, cartouches of the crustacean order, grotesque masks, and bunches of exotic vegetables which have no direct argument in the embellishment of a structure.

Note.—The substance of this extremely successful course of lectures will be incorporated in Mr. Richardson's large volume, "Monumental Architecture in Great Britain," which is to be published by B. T. Batsford at the beginning of March.

STAINED GLASS AND STAINED-GLASS CARTOONS.*

By CHRISTOPHER WHALL, A. & C.

THE first Arts and Crafts Exhibition, held in London in 1888, brought to light one curious and interesting fact—that for some years previous to that date there had been in every kind of craft a few men who, unknown to the world and even to each other, had been teaching themselves to make with their own hands the whole of some object of art, which had, till then, been made by many hands working together. To bind

* From the Catalogue of the British Arts and Crafts Section of the Ghent International Exhibition.

a book, to make out of the plank a piece of furniture, to cut and paint and glaze a stained-glass window.

This movement has spread, and to such an extent that not only are there now many craftsmen working in this way, but also many of the general public who are interested in these things and who desire to know about them.

Let us say, then, what it is possible to say in a few words of the making of a stained-glass window. In the first place, you must know that "stained glass" means pieces of coloured glasses put together with strips of lead into the form of windows; not a picture painted on glass with coloured paints.

You know that a beer bottle is blackish, a hock bottle orange-brown, a soda-water bottle greenish-white. These are the colours of the whole substance of which they are respectively made. Break such a bottle; each little bit is still a bit of coloured glass. So, also, blue is used for poison bottles, deep green and deep red for certain wine glasses, and, indeed, almost all colours for one purpose or another.

Now, these are the same glass and coloured in the same way as that used for church windows.

Such coloured glasses are cut into the shapes of faces, or figures, or robes, or canopies, or whatever you want and whatever the subject demands; then features are painted on the faces, folds on the robes, and so forth—not with colour, merely with brown shading. Then, when this shading has been burnt into the glass in a kiln, the pieces are put together into a picture by means of grooved strips of lead, into which they fit.

Each different colour, therefore, in a window must be separated from the others by a black line about seven millimetres wide, and, therefore, the nuances of other forms of painting, the realisms of portraiture, of atmosphere, of light and shade, are here possible only in a very limited degree, and should not be expected or wished for. We must learn to accept some limitations, and be content with a mosaic treatment of coloured pieces in a more or less severe arrangement, satisfied to have, in exchange for this self-denial, the one thing which stained glass can give us—colour more glorious than is attainable by any other form of art.

This is really all that the amateur need know about the actual technique of stained glass. For those who want the degree of knowledge which would enable them to practise the art there is nothing for it but to learn it at the bench and easel, in a workshop or a technical school, of which there are now plenty, at least in England. But everyone wishes, or should wish, to know good from bad; to be able, in short, to form a correct judgment on every subject which engages his attention. If the reader, therefore, wishes for this knowledge with regard to stained-glass windows, I would ask him to put to himself some questions of no great difficulty or intricacy, although to answer them well he ought to know the processes of the work, even if he has not practised them.

And the very first question he should ask himself is: "Does the window look like glass? Do I feel that it is doing some special thing, giving some special pleasure, which no other material can give so well?"

When we enter a thirteenth-century cathedral and see the solemn harmonies of blue and crimson and purple and gold, our first feeling is of a great physical pleasure to the eye, as, if the great organ is sounding, our first feeling is one of intense enjoyment of the ear. We do not ask ourselves at first what the sight or the sound means: we are content to have our feelings elevated, our passions calmed, our senses soothed by that obedience to Heaven's laws which has produced for us those beautiful feelings and emotions. What have you seen then? What heard? Solemn harmonies of sound—glorious colour—with an added sense, in the case of stained glass, that the colour is displayed by the very light of Heaven passing through.

Such, then, is the thirteenth-century glass. And though fifteenth-century is generally much more gay, more sparkling, lighter in tone, the whole effect is just as crystalline and fair: you feel in each case that it is, above all things, glass, and that glass is a beautiful thing when dealt with by a true artist's hand; you must be pleased by the harmonies of colour, by the dainty texture, by the differences of light and transparency: some pieces like horn or cloudy agate; some like clear diamond or emerald; just as in a parterre of flowers, some are like velvet and some like silk or pearl; some dry and flat in texture, some covered with soft hair, some powdered as if with flour, like the centre of the auricula in contrast with its velvet, or the centre of the holly-hock in contrast with its satin and silk. You must ask

yourself, then, if you wish to judge rightly between good stained glass and bad, whether these things are sufficient delight to you; and, if you agree that they are, you must go a step further and decide the question for yourself, whether the limitations of the art which are the necessary condition of giving us these beauties are things which you can accept without regret and sense of loss; whether, instead of the vivid portraiture and rich light and shade of Rembrandt, you can be satisfied with figures painted flatly like thirteenth-century frescoes; whether instead of Raphael's grace and Michel Angelo's storm of movement you can accept a more rigid stateliness and restrained action and attitude; whether, in short, you can take your satisfaction and pleasure in this particular case from a picture composed by means of a mosaic patterning of coloured pieces, divided up by lead-lines in every direction. Because if you cannot do these things you have not yet arrived at the point of view which makes you a right judge of stained glass. And to be a real judge in the matter you must go still further than this. You must learn even to love the limitations; to take such an intelligent view of the craftsmanship as to enjoy the restrictions which the material imposes and to delight in the way in which the cunning worker uses them and makes his beauty out of them. If, therefore, you see a window that gives you the softnesses and sweetnesses of Murillo or Carlo Dolce, the movement and drama of Raphael or Michel Angelo, and the realism and solidity of Rembrandt, distrust it, and look for the beauties in the flat mosaic treatment of the Middle Ages; the quaint splitting up of the picture by a spider's web of lead, and the naïve way in which the artist will carry the painting on over several divisions of space. And remember also that even besides the restraints which the material imposes, there is yet another reason why certain qualities which we rightly admire in pictures must be denied to us in stained glass, and that is that the latter is an accessory to architecture and must not force itself upon us with all the fullness of realism at the cost of disturbing the repose of the building. For if you go into a church, and the first thing that arrests your attention and claims the first place in your notice is the windows—in short, if you see "windows" instead of "church"—then be assured that if the church is itself a worthy work of art the windows must be all wrong.

A few words in conclusion may perhaps usefully be said about the position, aims, and possibilities of the art of stained glass (and, indeed, all the architectural arts) as they exist and are practised at the present moment.

The principle of observing the right limitations is, I do not hesitate to say, the most important, and far the most important, of all principles guiding the worker in the right practising of any craft.

The next in importance to it is the right exercise of all legitimate freedom within those limitations. I place them in this order, because it is better to stop short, by nine-tenths of right liberty, than to take one-tenth of wrong licence. But by rights the two things should go together, and, with the requisite skill and training to use them, constitute indeed the whole of the practice of the craft.

Modern division of labour is much against both of these things, the observance of which charms us so in the ancient Gothic Art of the Middle Ages.

For since those days the craft has never been taught as a whole.

Modern stained-glass work is done by numerous hands, each trained in a special skill: to design, or to paint, or to cut, or to glaze, or to fire, or to cement; but none are taught to do all. Very few are taught to do more than one or two. How, then, can any either use rightful liberty or observe rightful limitations? They do not know their craft, upon which these things depend. And observe how completely, also, these two things depend upon each other. You may be rightly free, because you have rightly learnt obedience; you know your limitations, and, therefore, you may be trusted to think, and feel, and act for yourself.

This is what makes old glass, and, indeed, all old art, so full of life, so full of interest, so full of enjoyment—in places so full even of "fun." Do you think the charming grotesques that fill up every nook and corner, sometimes in the minor detail of mediæval glass or carving, could ever be done by the method of a "superior person" making a drawing of them, and an inferior person laboriously translating them in facsimile into the material? They are what they are because they were the spontaneous and allowed licence and play of a craftsman who knew his craft, and could be trusted to use it wisely.

What then, lastly, is the outlook? And what the hope for the future?

In the very midst of the pampered and enervated over-refinement of Roman decay, Constantine did something more than turn the conquering eagle back, against the course of the heavens, for which Dante seems to blame him, when he established his capital at Byzantium. For there at once upon the new soil, and in less than a single century, sprang to life again all the natural modes of building and decoration that, despised as barbaric, had been ignored and forgotten amid the Roman luxury and sham.

It is a curious feature of these latest days of ours that this searching after sincerity should seem to be leading us to a similar revival; taking even very much the same forms. We went back at the time of the so-called "Gothic Revival" to the forgotten arts of the Middle Ages, practising them, however, in an academic manner. Now, tired as it would seem of the insincerity of such methods, a number of us appear to be ready, and certainly a number of us have made ourselves able, to deal with these things as practical craftsmen, making our works of art, as the Gothic craftsmen did, with our own hands, not merely "directing" or "designing" them, but handling tools and materials ourselves. This is the new phase of things which to-day bears the name of the "Arts and Crafts Movement," and it is curiously like what took place at the time to which I have just referred—the dawn of the Christian era and of a new civilisation; and what happened then has special interest for us to-day, because it also was not a case of an infant or savage race beginning all things from seed, but a revival, as in Sparta, centuries before it, of simplicity and sincerity of life, in the midst of enervation, luxury, and decay.

This seems our hope for the future. There has already gathered together in the great field of the arts of to-day a little Byzantium of the crafts setting itself to learn from the beginning how things are actually made, how built, hammered, painted, cut, stitched; casting aside theories and academical thought, and founding itself upon simplicity, and sincerity, and materials. And the architect who condescends, or, as we should rather say, aspires, to be a builder and a master mason, true director of his craft, will, if things go on as they seem now going, find in the near future a band around him of other workers so minded, and will have these bright tools of the accessory crafts ready to his hand. This it is, if anything, that will solve all the vexed questions of "style," and lead, if anything will, to the art of the times to be.

NOTE.—A portion of this article is taken from the author's text-book "Stained-Glass Work" in the "Artistic Crafts Series of Technical Hand-books."

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

A MEETING of the Society was held on Tuesday, December 16, at 64 St. James Street.

Messrs. E. H. Brown and E. Fincham were elected Associates.

In the absence of the President, Mr. Harry Gill (Vice-President) occupied the chair.

Other business being disposed of, Mr. J. R. Naylor, F.R.I.B.A., read a paper on "The Priory Church of Tutbury." After a general description of monastic buildings and the rules which influenced their planning, he referred to the church at Tutbury, and stated that his interest in it commenced at the time he was called in to report on the serious state of repair of the south aisle and tower. During the work of restoration many discoveries have been made, of which he had careful notes; and, as few authorities can be consulted as to its history, there are numerous features of interest which lend themselves to profitable architectural discussion.

The church is dedicated to St. Mary the Virgin. Tutbury is mentioned in Domesday Book as "Toteberie," probably from an altar on the Castle Hill dedicated in Saxon time to their god "Tot," or "Thoth." William the Conqueror granted the castle to Henry de Ferrers, who founded the priory of Tutbury. The foundation charter is dated 1080, and it is stated—although doubtful—that the church was finished in 1089. The plan was the usual one for Benedictine monks, with cloisters, dormitories, &c., adjoining the church. The church itself was a great church, the portions now remaining conveying but a poor impression of its original magnificence.

The last Prior handed over the priory to Henry VIII., and was pensioned by an annuity of £50. As its value was about £242, Henry's property was equal to about £200 per annum.

When Mr. Naylor took the repairs in hand the walls were in a very bad condition. These have been grouted in, the outer parts of the window tracery replaced by new, and the old Norman doorway has been made safe. The whole of the old glass has been re-used. Old oak, some given and some bought locally, has been used to replace what was rotten and missing.

The old Norman floor is covered with a thick deposit of what seems to be decayed rushes, the flooring itself being of marl beaten hard.

By means of specially prepared diagrams, drawings, and photographs, Mr. Naylor then indicated what in his opinion were the original plans of the church, the filling of the triforium arches, the use of the interesting staircase at the west end, and the reason for the six peculiar-shaped pillars in the arcade, and concluded with his views on the vexed question of what is allowable in the way of restoration of our old churches.

An interesting discussion followed, in which Messrs. Woore, Whitbread, and others took part.

Mr. Gleave, in proposing a vote of thanks to the lecturer, suggested that the Society might consider the question of visiting this interesting but little-known priory church while Mr. Naylor had it in hand.

Mr. Hoazell, who seconded the vote of thanks, remarked that it was gratifying to know that the restoration was in such careful and capable hands.

THE Mayor of Nottingham (Mr. F. Ball) entertained his brethren of the architectural profession in the Nottingham and Derby district last night at a banquet at the Exchange Hall, Nottingham, and nearly a hundred members of the joint society enjoyed Mr. Ball's hospitality.

"The Nottingham and Derby Architectural Society" was the subject of the toast submitted by the Mayor. The Society, said the Mayor, had been in existence for fifty-one years, and its membership had at no time been so numerous or more enthusiastic than at present. It was controlled by an energetic committee, with a President who was respected by every practising architect in the city.

"I am conscious of the fact," the Mayor added, "that Nottingham is not the happy possessor of many modern buildings of outstanding architectural importance, but we look with confidence to this condition being remedied in the near future. I trust our local architects may shortly be given an opportunity to produce something of which we may be proud." There was a growing conviction, he said, among a large and increasing section of members of the City Council that a new Council Chamber and block of civic buildings must ere long be erected upon the site of the present Exchange building. They possessed a site second to none in the country, upon which now stands a meagre, unpretentious, and undesirable block of ancient property, offensive to the good taste of the inhabitants and no credit to the city. When the time was ripe he trusted the Council in their wisdom would invite competitive plans, and with the assistance of an assessor of undoubted eminence make a selection of the best scheme submitted. He hoped the happy and successful competitor might be a native of Nottingham.

The President of the Society, Mr. E. R. Sutton, in response, jocularly mentioned that this was the first time the Architects' Society had been entertained by the Mayor of Nottingham, though the Society had had the pleasure of entertaining Mayors of the past. The Architects' Society had presented Nottingham, said Mr. Sutton, with a unique Mayor. Some were born great; some had achieved greatness; some had greatness thrust upon them. In the Mayor they had a living example of all three. In 1861 he was the finest baby born in Lenton. His achievements were dotted up and down the city for all to judge; and the greatness thrust upon him was the position he held as first magistrate of the city. The architects of the city were proud that one of their number had been found worthy to fill the office. Last year, said Mr. Sutton, the Nottingham Society celebrated its jubilee. It was one of the oldest (if not the oldest) allied Societies in connection with the Royal Institute of British Architects. They now boasted a membership of 115.

Referring to the suggested new Town Hall, Mr. Sutton made an interesting suggestion that the new Town Hall might be placed in the centre of the Market Place, with main entrances facing Chapel Bar, High Street, and Pelham Street, and in front of the main entrances would be open spaces with the Town Hall as a background for any monuments of the future. Nottingham was lacking in monu-

ments, as in monumental buildings, said Mr. Sutton, because there was no place to put them.

Mr. A. N. Bromley, who proposed the toast of "The City of Nottingham," disagreed with Mr. Sutton's suggestion that the Market Square should be sacrificed to a new town hall. He would be jealous of a foot of the Market Place being taken, he said, for he thought Nottingham's splendid Market Place was much better left as it is.

ECCLESIASTICAL ARCHITECTURE IN CENTRAL ITALY.

By T. FRANCIS BUMPUS.

Author of "The Cathedrals and Churches of Northern Italy," "The Cathedrals of England and Wales," "London Churches, Ancient and Modern," "The Cathedrals of Northern France," &c.

(Continued from page 393.)

THE grand flights of steps to which I have alluded extend into and completely occupy the easternmost bay of the nave on either hand. At the top of the first ascent of seven steps is a landing, and here are the slender tripled shafts with short sculptured capitals and square abaci supporting the wide semi-circular arch between the nave and the choir. Against this pier on either side a very charming pulpit is corbelled. It has three oblong sides quite plain, and separated from each other by angle shafts with capitals exhibiting the à-crochet form of ornamentation, as does the corbel underneath the pulpit. From this point the second series of steps starts, and is continued as far as the first of the two bays into which the choir (or, most strictly speaking, the sanctuary)* is divided. This two-bayed sanctuary of San Sisto at Viterbo is in a lighter and, I should conceive, later style of the Romanesque than the nave and the apse, between which it was in all probability inserted in lieu of an older one, and the effect of its enormous pillars shooting up far above the arch between the nave and the choir is most startling. The two bays into which this portion of the church is divided are separated from each other by a prodigiously tall and massive circular column, with two rows of bold leafage in its capital, not unlike that crowning the columns in the nave of Orvieto Cathedral. The first bay is much narrower than the other, and its arch springs on the western side from a pilaster-like shaft placed on the capital of one of the shafts composing the pier of the choir arch. The western respond is a square half pier, also with the super-imposed pilaster, and about half-way up the left-hand respond is an attached shaft forming, in all likelihood, the remains of an earlier and lower arcade. The capital is short, and foliated so much like those in Oxford Cathedral that one would feel inclined to put the date of this part of San Sisto at about 1180. The second bay of the choir has a wide, plain, round arch, and its respond is a graceful semi-cylinder uniform in height with the great dividing column, and with carving in its capital of the same bold yet delicate type. The shafts carrying the transverse arches of the aisle vaults are pilasters, the roofs themselves being vaulted in a very peculiar manner. In the first or narrower bay the barrel-shaped vault is transverse to the axis of the church, while in the second, or wider, bay it is parallel with it. In the central portion of the choir the first bay is vaulted transversely to, and the second parallel with, the axis of the church. The vaulting here, and indeed the character of the work in other details, is very reminiscent of the great Burgundian abbey church at Tournus. I should have observed that the capitals of the two great cylindrical columns have no abaci, though their responds have. Either aisle terminates in a shallow apse, but as it is only scooped out in the thickness of the wall it does not appear externally. The first bay of either aisle is lighted by one narrow round-headed slit of a window, and the second bay on the south by a similar window surmounted by a circlet. The corresponding bay of the opposite aisle has three slits, with a circlet over them. In the central apse, which with its conch is feebly painted in a modern style to imitate mosaic work, there is only one round-headed window, small, and pierced in the upper part of the wall, which externally exhibits the usual shallow Longobardic arcading. There is a series of plain Renaissance stalls in the apse, and behind the high altar is a revolving letter bearing an Antiphonarium and a Graduale dated respectively MDCLXXXI and MDCLXXX, printed in Venice, both very clean and well used. Above the high altar—a quiet, unobtrusive composition of varied marbles—is an enormous modern effigy of St.

* The choir or "chorus cantorum" is in the anse, the "Sanctuary" containing the altar being in advance of it.

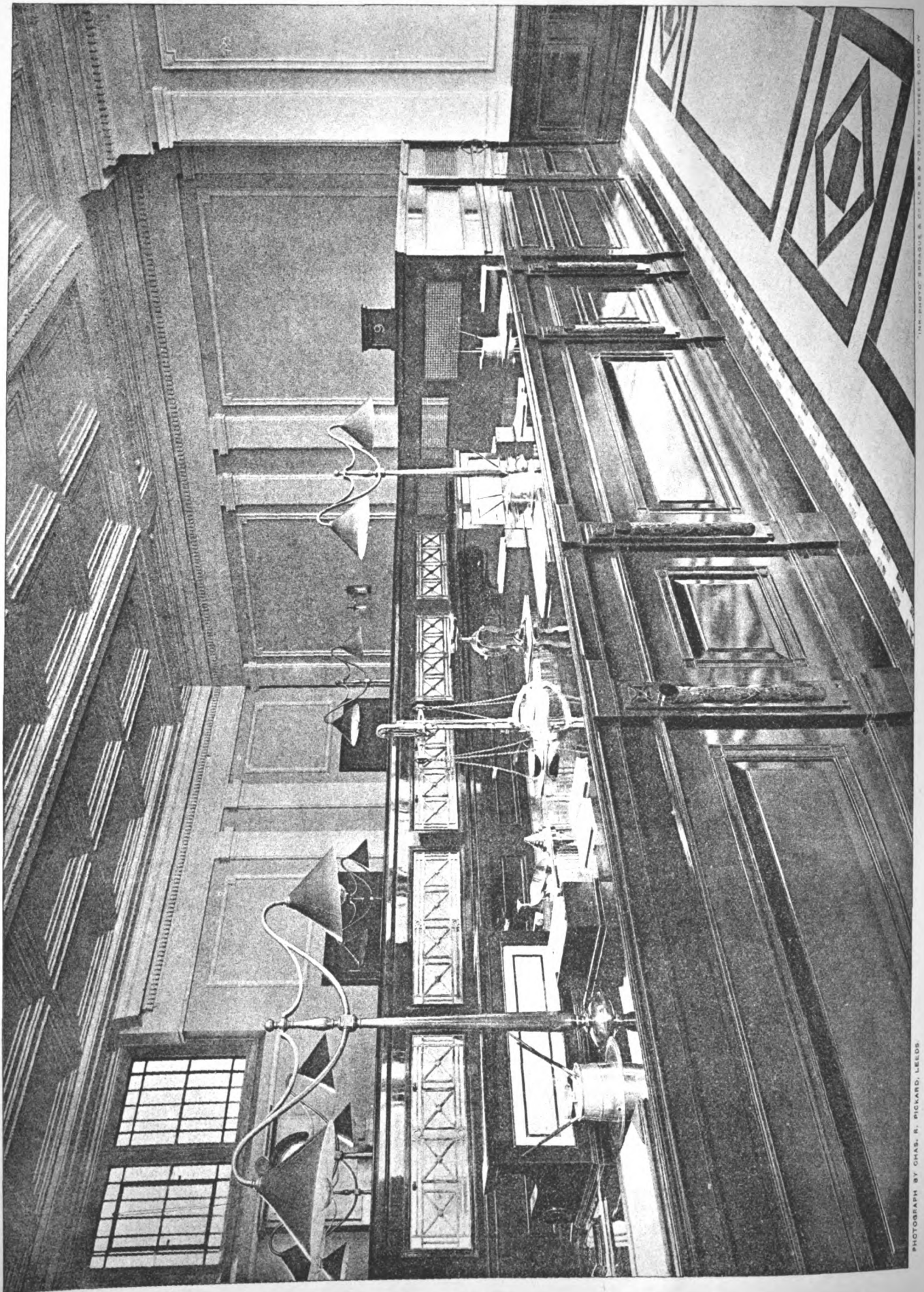
MODERN EUROPEAN ARCHITECTURE.
BAVARIA.[From *Moderne Bauformen*.]

RATHAUS AT RUDOLSTADT.—Herren THEODOR VEIL and GERHARD HERMS, Architects.

Sixtus, crowned with the tiara, holding in the left hand a cross, while the right is raised in blessing. It is quite out of place where it is and destroys the otherwise good effect of the apse. The crucifix and six candles are raised at a considerable height above the altar on a predella straight from end to end, the former being placed upon the tabernacle, which breaks the line of the predella aforementioned. On the south side of the nave, within a recess, is a curious font, closely railed in. It appeared to be of white marble, and on the bowl, which has a plinth ornamented with a continuous band of small triangular figures, is delicate leafage. The base of the font is plain and cylindrical. The west front of this church has been modernised and presents few features of interest beyond three very beautiful arcades in the lean-to end of the south aisle, but even these have been rudely disturbed by a miserable square window. There is a massive buttress, with one very deep "set off" at the angle of this aisle. The campanile, a tall, plain one of Early Renaissance character, is attached to the south-east end of the choir aisle. It has a low pyramidal capping, and the western side has three bells suspended in as many plain round-headed arcades. A tower appears to have been intended to rise above the first or narrower bay of the choir, and on the side presented to the south shows three round-headed openings, narrow and separated from each other by

bulging shafts—miniatures of those in the nave. But this stump does not play any part now in the outline of the church, as, between it and the campanile, there is a piece of modern walling ranging in height and pierced by an ugly round window with straight spokes by way of tracery. Inside the church a square-headed door admits to the staircase of the campanile. Above the arch between the nave and the choir, but seen only from the latter, are two round-headed openings, which perhaps formed part of a central tower before the present lofty choir was built, and the short shaft alluded to just now in connection with the choir arcade may have formed one of the responds to its northern arch.

San Giovanni Zoccoli is situated on the opposite side of the city, among some narrow and not over-clean streets lying to the north of the main thoroughfare, and has a very beautiful façade, from which, to the houses opposite, two stone arches are thrown with picturesque effect—recalling Palermo on a small scale. The western portal has its jambs, lintel, and arch soffits enriched with continuous series of the four-leafed ornament. There is a smaller round-headed door at the extremity of either aisle, and the west window is a beautiful rose, set in a square panel, with the Evangelistic symbols in the spaces formed by the round with the square. This large rose encloses two smaller ones. From the rims of each of these circles spokes radiate in the form of



"THE PHOTO" BRIDGE & CO. LTD. 25 & 27, BROAD STREET, LONDON W.

LLOYD'S BANK. KEIGHLEY.

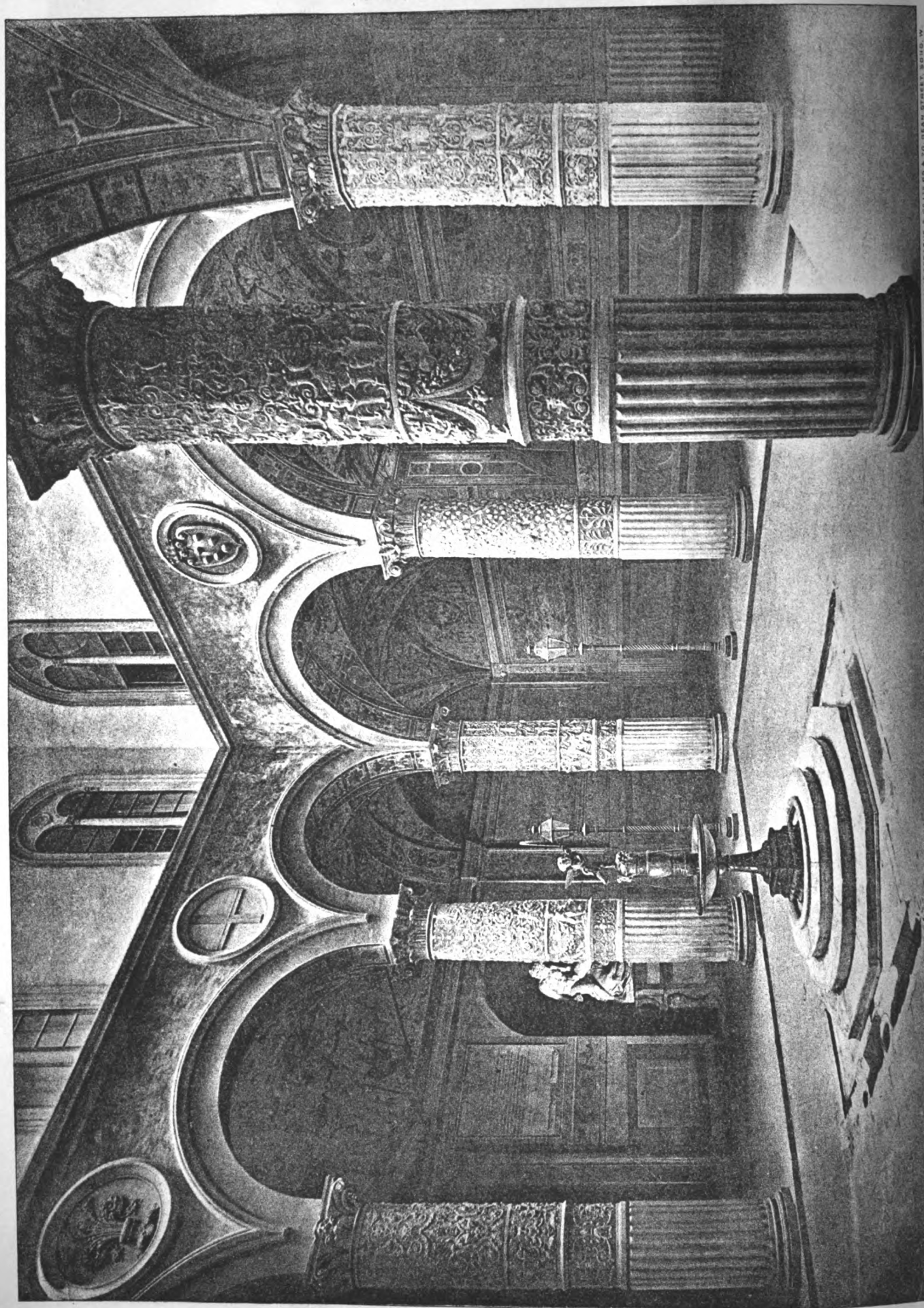
PHOTOGRAPH BY CHAS. R. RICKARD, LEEDS





"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

COLUMN WITH STUCCO ORNAMENT FROM CORTILE OF PALAZZO VECCHIO, FLORENCE.



CORTILE OF PALAZZO VECCHIO, FLORENCE.

THE PHOTOGRAPH BY L. G. & T. G. DEAN STREET, LONDON, W.



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

STUCCO ORNAMENT ON COLUMN IN CORTILE OF PALAZZO VECCHIO, FLORENCE.



"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

COLUMN WITH STUCCO ORNAMENT FROM CORTILE OF PALAZZO VECCHIO, FLORENCE.

The Architect, Dec. 26th 1913.



PHOTOGRAPH BY CHAS. H. PICKARD, LEEDS

INK PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W

LLOYD'S BANK, KEIGHLEY.

MR. SYDNEY D. KITSON, M.A., F.S.A., F.R.I.B.A., Architect

MODERN EUROPEAN ARCHITECTURE.
GERMANY.



[From *Deutsche Bauzeitung*.

NEW EVANGELICAL CHURCH AT CHARLOTTENBURG.—Herr JURGEN KRÜGER, Architect.

THE INVENTION OF THE AGE!!

Fuel Economiser and Heat Increaser.

The New FIREPLACE, Invented by Dr. W. P. KLOBUKOWSKI, of 71 Jerozolimska Street, Warsaw, has the following important advantages:

**MODERATE
IN
COST.**

1. The immediate distribution of heat, while the fire is burning, from the back parts of the fireplace, and the quick heating of the Room.
2. The continual circulation of warm air from ceiling to floor, owing to the cold air from the floor surface being drawn into a hot air chamber and heated, whereby a normal temperature is maintained and no cold is felt to the feet.
3. The great economy in the use of fuel amounting to as much as 50%.
4. The air is sterilised, moistened, according to the degree of heat generated, ozonised, disinfected, or scented.
5. The increase of the heating capacity of the fireplace.
6. The long-lasting distribution of heat after the fire has gone out.
7. The absolute removal of dampness from the walls.
8. The easy adaptability of the apparatus to old as well as to new fireplaces.
9. The interior of the fire-grate does not get over-burnt, consequently it lasts a very long time.
10. Smaller fire-grates can be used.

**PERFECT
IN
ACTION.**

AGENTS WANTED.

Write for Lists.

THE WALL-PAPER MANUFACTURERS LTD.

"Relief Decorations."

ANAGLYPTA & SALAMANDER

London Show Rooms:

1 Newman Street, W.

Works Tel. No.: 155 Darwen.

London Tel. No.: 2731 Gerrard.

Telegrams ("Anaglypta, London.")

Telegrams ("Anaglypta, Darwen.")

LINCROSTA-WALTON, CAMEOID & CORDELOVA

London Show Rooms:

1 Newman Street, W.

London Tel. No.: 3769 Gerrard.

Telegrams: "Lincrosta-Walton, London."

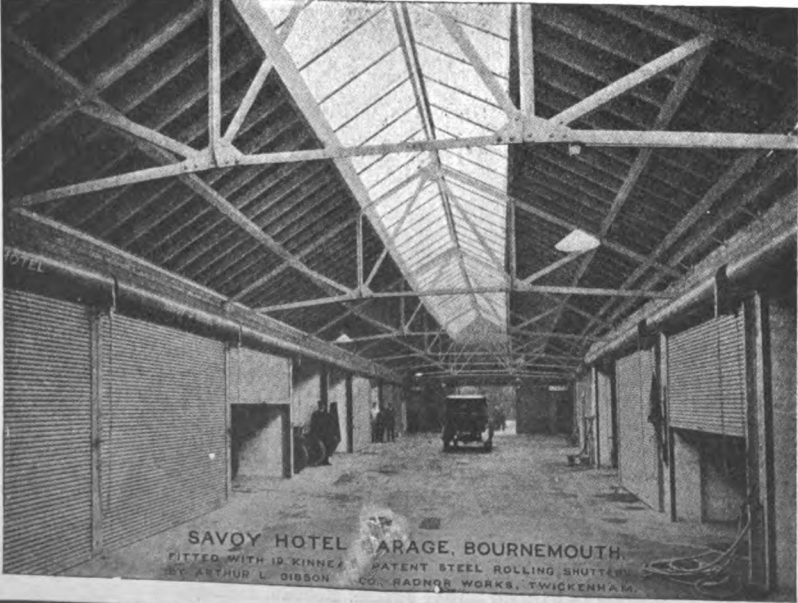
LIGNOMUR

Works: Old Ford Road, Bow, E.

London Tel. No.: 422 East.

Telegrams: "Lignomur, London."

SAMPLES, ILLUSTRATIONS and FULL PARTICULARS can be obtained on application to the respective Branches of The Wall-Paper Manufacturers Ltd., as above.



ARTHUR L. GIBSON & CO.
Radnor Works, Strawberry Vale,
TWICKENHAM.
SOLE MANUFACTURERS OF
Kinnear Patent
Steel Rolling Shutters
FOR
TRAMCAR DEPOTS,
GENERATING STATIONS,
BOILER HOUSES,
ENGINE SHEDS,
WAREHOUSES,
GARAGES,
And Entrances Generally.

MANCHESTER:
33 Arcade Chambers.
St. Mary's Gate.

GLASGOW:
79 West Regent Street.

SAVOY HOTEL GARAGE, BOURNEMOUTH.
FITTERS WITH 12 KINNEAR PATENT STEEL ROLLING SHUTTERS.
BY ARTHUR L. GIBSON & CO. RADNOR WORKS, TWICKENHAM.

pillarets supporting round arches. In the outer row there are sixteen such openings, in the inner one eight. The little innermost circle is delicately sculptured. The square figure, within which this gem of a rose window is described, has a narrow border of mosaic work, and on either side of it is a corbel supporting an eagle. In some respects this façade of the Zoccoli at Viterbo may be classed with the more ornate one of Sta Maria Maggiore at Toscanella. The south side of the church is flanked by parasitical tenements, but a tolerably advantageous view of its *ensemble* may be had from the Vicolo di SS. Simone e Giuda. The eastern apses are very simple and without any arcading. The material is a brown stone, and the low-pitched roofs are of red tiles. Belonging to the church, but placed at a little distance, with its fronts looking north and south, is a charming gabled bell-cote, with two round openings and deep buttresses.

Internally, although quite devoid of colour whether mural or vitreous, San Giovanni Zoccoli is deeply impressive from the simple solemn beauty of its late Romanesque architecture and from the manner in which the pavement slopes gradually downwards from the high altar to the principal entrance. The plan, which is parallel triapsidal, is equally simple—a nave with open gabled roof of wood with tie-beams; clerestory; aisles, with lean-to roofs, also of wood, and three apses. There is no distinct choir, the sanctuary being formed within the last bay of the nave, which is wider than the others, and distinguished from them by its pier, which is composed of a square nucleus with a half-cylindrical shaft on its eastern and western sides, and a pilaster on its northern and southern ones. The half cylinder looking west has a very thin carved capital crowned with a square abacus, while that looking east has a deep capital, boldly foliated. The responds of the easternmost bay are composed of three pilasters, also with deep carved capitals. The columns supporting the four arches of the nave are tall but not very stout, and with shallow capitals varying in the style of the carving. The choir is raised five steps above the nave, from which it is separated by a low stone wall enriched with cuttings in the form of diamonds mingled with circles. The high altar is under a stone baldachin covered with a low four-sided spire, its four plain arches being supported upon as many cylindrical columns with sculptured capitals of the *a-crochet* type. The stone altar has five shallow arcades on its front facing the nave, the three others being plain, and the mensa projects considerably over it. In the apse behind it is an episcopal throne approached by three steps and devoid of ornamentation. Each of the lateral apses contains an altar whose long mensa is supported upon one square pillar. All three apses are not only quite plain, but have no string between their walls and their conches; each is lighted by one deeply-splayed round-headed window, that of the main apse having foliage ornament in its jambs. All the windows in this church are glazed in patterns formed of very small circles, and on the walls of the aisles which have no windows at all are several consecration crosses with trefoil-shaped ends to their equal arms.*

Of Sta Maria Nuova I am unable to give any account as it was closed for repairs at the time of my visit; consequently there was no getting in. Externally it seemed to be a church of much the same type as San Giovanni, having a nave and a choir under one continuous roof, with a clerestory and very tall aisles; but I should think it had preserved its original Romanesque character more completely. The western façade is extremely simple and severe, and at its north-west angle is a very charming little pulpit elevated at some distance from the ground upon a pillar.

* From the shape of these consecration crosses, and the character of the sculpture in the capitals of the nave piers, to say nothing of the western façade, one would be led to suppose that, with the exception of the three apses, San Giovanni at Viterbo was rebuilt about the end of the twelfth century. In some respects the façade may be compared with that of Sta Maria at Toscanella, which is known to be of that date.

An episcopal seat is to be provided in the sacristy of Lichfield Cathedral at a cost of £350 out of a memorial fund to the late Bishop Legge. The Hon. John Collier has been selected to paint a memorial portrait for the Bishop's Palace.

In response to the appeal by the Dean and Chapter of Chester Cathedral for £14,000 to complete the restoration of the cloister buildings and refectory of the cathedral, which have fallen into a state of great decay, there has been so far subscribed the sum of about £2,400.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BERKSHIRE.

Letcombe Regis.—Six workmen's dwellings.

Reading.—All Saints Institute, Downshire Square. Mr. J. H. Goodman, architect, Town Hall Chambers.

BUCKINGHAMSHIRE.

Slough.—Secondary School: additional 125 places.

CHESHIRE.

Birkenhead.—Proposed Council School, New Ferry.

Macclesfield.—Fire Station, Westminster Street, for the Volunteer Fire Brigade.

Tarporley.—Special subjects centre (£1,700).

Willaston.—Proposed Council School (£3,500).

CORNWALL.

Launceston.—Workmen's cottages.

Phillack.—Public Hall, for Mr. G. Bond.

Truro.—Royal Institution of Cornwall: Central Exhibition Hall (£3,500) and Barham Memorial Wing (£1,500).

CUMBERLAND.

Carlisle.—Ladies' Swimming Bath: extension (£2,000).

City water engineer.

Wigton.—Jam factory, Dye Works Field, for Messrs. Carr, White & Co., Ltd.

DERBYSHIRE.

Derby.—Central Fire Station: extension (£1,700).

Heanor.—Secondary School: additions (£1,520).

DEVON.

Devonport.—Electricity Department Offices, Newport Street (£1,250).

Ermouth.—R.C. Church of the Holy Ghost, Radden Stile Lane (£3,500). Very Rev. Canon Scoles, architect.

Foggintor.—Council School (£2,300).

Hawkmoor.—County Sanatorium (£18,000).

Plymouth.—Headquarters, Lambhay Green, for the Devon Fortress R.E.

Woolacombe.—Council School and teachers' house (£2,400).

ESSEX.

Colchester.—Guardians' Boys' Homes.

Ilford.—Refuse destructor and engine house, Suffolk Road, Seven Kings (£21,600). Mr. H. Shaw, Council surveyor.

Leigh and Thorpe Bay.—Electricity sub-stations (£50,000).

Orsett.—Proposed housing scheme. Mr. F. J. Winter, architect, 2 Heygate Avenue, Southend-on-Sea.

Purleigh.—Church tower: restoration. Mr. P. M. Beaumont (of Maldon), architect.

Southend-on-Sea.—Swimming Bath: completion.

Thorpe Bay.—(See above.)

West Ham.—Sanatorium and Hospital for Consumptives.

HAMPSHIRE.

Bishop's Waltham.—Drill Hall. Messrs. Hair (A.R.I.B.A.) & Bucknill, architects, 23 Portland Terrace, Southampton.

Southampton.—No. 380 Shirley Road: additions and alterations for Messrs. Weston & Burnett.

LANCASHIRE.

Ashton-under-Lyne.—Secondary School (£20,400).

Heywood.—Mill for about 90,000 spindles, for the Mutual Spinning Co.

Liverpool.—Picture Hall, Breckfield Road North, for Mr. B. T. Globe.

Picture Hall, Great Homer Street, for Mr. S. Cohen. Sanatorium for tuberculous children.

Manchester.—Warehouse, Great Ancoats Street, Mr. W. H. Longworth, architect, 4 St. Mary's Parsonage.

Norbreck.—Baths, one hundred bungalows, café, &c., for garden suburb. Mr. F. W. Lyons (of Liverpool), architect.

LEICESTERSHIRE.

Leicester.—Cripples' Guild: hall and class-rooms (£1,300).

MIDDLESEX.

Palmer's Green.—Congregational Church.

Yiewsley.—S.A. Hall, West Drayton.

SPECIFY**CLARIDGE'S****PYRIMONT-SEYSSEL
ASPHALTE****FOR DAMP-COURSE,
ROOFS - FLOORS
ETC.****CLARIDGE'S PATENT ASPHALTE CO., Ltd.****21 SURREY STREET, STRAND, W.C.**TELEPHONE—
8836 CITY.

ESTABLISHED 1838.

TELEGRAPHIC ADDRESS—
"Claridge, Estrand, London."**Orr's Zinc White Limited**

Telegram: "Orr, Widnes."

WIDNES, LANCS.

Telephone: No. 56.

Manufacturers of

**"ZINGESSOL" J. B. ORR'S PERFECTED
WATER PAINT, and
NON-POISONOUS WHITE PIGMENTS.****ZINC SULPHIDE WHITE** (Original Patentees).
PURE OXIDE OF ZINC, produced by sublimation
of the metal.**"SILOX,"** a special White for use in place of White
Lead.

ENQUIRIES SOLICITED.

ENGLAND—continued.

NORTHAMPTONSHIRE.

Burton Latimer.—Baptist Chapel.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Alterations to the "Butchers' Arms" (Shield Road), the "Eldon Arms" (Blackett Street), and the beerhouse at 106 Shield Street. Public Elementary School, Walker Road.

NOTTINGHAMSHIRE.

Carlton.—Elementary School for 500 places.

Kirkby-in-Ashfield.—Refuse destructor (£3,000).

Newark.—Premises, Market Place, for the London City and Midland Bank.

SHROPSHIRE.

Hodnet.—Lyon Memorial Hall (£1,000). Mr. C. E. Davenport, architect, 152 Hospital Street, Nantwich.

STAFFORDSHIRE.

Smethwick.—Council Schools, Waterloo Road: Laundry and Cookery Centre and extension of Manual Training Centre.

Stoke-on-Trent.—Headquarters, Commerce Street, for the Wesleyan Mission (£12,000).

West Bromwich.—Council Schools, Cronehills (£16,500).

SURREY.

Carshalton.—House, the Ridgway, for Messrs. P. V. Windebank & Co.

Croydon.—Cinema, Norbury, for the Picture Playhouse (Norbury), Ltd. Mr. H. M. Wakley, F.R.I.B.A., architect, 11 Adam Street, Strand, London.

SUSSEX.

Stedham.—Council School: extension.

WARWICKSHIRE.

Birmingham.—Premises, West Grove, Hagley Road: additional wing to accommodate H.M. Judges. Mr. H. E. Stilgoe, city surveyor.

Nuneaton.—Public Art Gallery and Museum.

WORCESTERSHIRE.

Bromsgrove.—Hospital, Hill Top: tuberculosis pavilion (£1,600).

YORKSHIRE.

Barnsley.—Council School, Agnes Road: enlargement for additional 245 places.

Cleckheaton.—Four houses, Scandinavia Mills. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers.

Doncaster.—U.M. Church and Schools, Morley Road, Wheatley (£4,000).

Ecclesall.—Children's Hospital for the Board of Guardians.

Featherstone.—Mortuary for the U.D.C.

Huddersfield.—Six houses, Bromley Road, for Messrs. Piper & Co.

Two houses, Osborne Road, for Mr. T. Jury.

Picturedrome, Blacker Road North, for the Palladium Picture Company.

Northallerton.—Fever Hospital: laundry. Council surveyor.

Royston.—Working Men's Club and Institute, Midland Road: additions and alterations. Messrs. Moxon & Son, architects, 26 Church Street, Barnsley.

WALES.

Bangor.—Territorial headquarters, Glynne Road. Mr. E. Evans, architect, 8 Castle Street, Carnarvon.

Llanfyllin.—County Schools: extension.

Holywell and Mold.—Proposed infectious diseases hospitals (accommodation for 18 beds in each at a cost of £8,000 each), for Flintshire; or alternatively, *Northop and Halkyn* (between).—Proposed infectious diseases hospital for 30 beds (£14,000).

Swansea (near).—Congregational Church, Rhyddings (£3,500).

SCOTLAND.

Aberdeen.—Offices and stores for the Northern Fishing Supplies, Ltd. Mr. W. E. Gauld, A.R.I.B.A., architect, 11a Dee Street.

Dundee.—Harris Academy: extension (£16,300). Mr. J. H. Langlands, architect, 31 Murraygate.

Property, Lochee Road: alteration for Messrs. W. Fergusson & Son, Ltd.

Property, Albany Terrace: alteration for Mrs. G. A. Reid.

Property, Hilltown: alteration for Messrs. M'Kenzie & Campbell.

Cowgate School: caretaker's house.

Warehouse, West Street, for Messrs. F. Stevenson & Sons.

Dunfermline.—Four houses, St. Leonard's Place, for Mr. J. H. Beveridge.

Three cottages, Halbeath Road. Messrs. E. & J. Wilson, builders, Brucefield Avenue.

Four houses, Cameron Street. Mr. J. Baxter, builder.

Edinburgh.—(Supplementary to November 28.) Soldiers' and Sailors' Home, East Register Street. Messrs. Scott & Campbell, F.R.I.B.A., architects, 60 Castle Street.

Galashiels.—Municipal buildings (£7,000).

Glasgow.—Foundry, Cathcart, for Messrs. G. & J. Weir (of Holm Foundry).

Pattern shop and store, Whiteinch, for the North British Diesel Engine Works.

Rolling mill plant buildings, Petershill Road, for Messrs. F. Braby & Co., Ltd.

Flanging shop and material store, Blenheim Street, for the North British Locomotive Co., Ltd.

Training College, Demonstration School and Hostels, Jordanhill, for the Glasgow Provincial Committee for the training of teachers.

Irvine.—Hospital (£6,000).

IRELAND.

Ballymena.—Workhouse: infirmary. Messrs. Patterson & Grahame, architects, 48 Church Street.

Thurles.—Proposed District School.

BRITISH PATENT SPECIFICATIONS.

Selected and abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 2119. Jan. 27, 1913. Lock for Doors.—W. E. Dewhurst, Queen's Chambers, Preston.—The lock consists of a metal box in which is formed a groove inclined in an

Fig 1

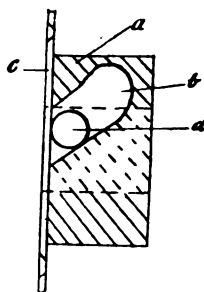


Fig 2

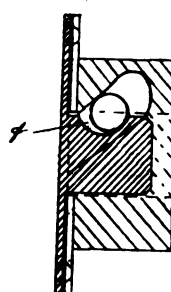


Fig 3



Fig 4

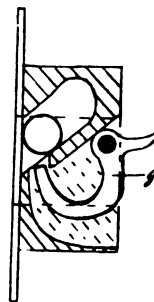


Fig 5

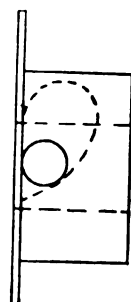


Fig 6

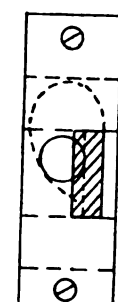


Fig 7

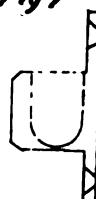


Fig 8



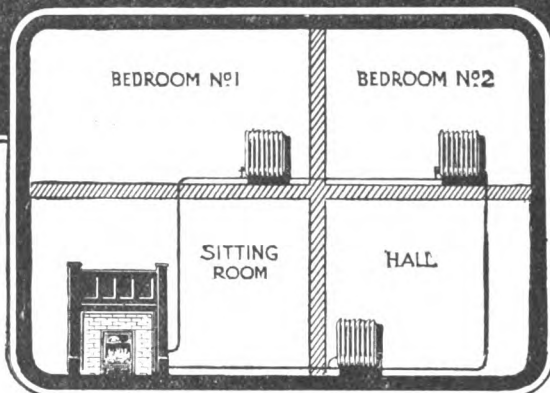
upward direction and away from the face, and partly cut away on the lower surface to permit the entrance of the striking plate; the groove is made of a size to permit the

DO YOU WARM YOUR BEDROOMS FROM THE SITTING-ROOM FIRE?

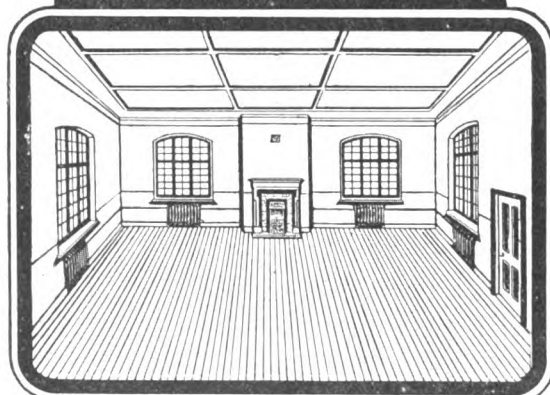
A Prior's Patent Heater

fixed at the back of the fire in a sitting-room grate, absorbs sufficient heat (usually lost up the chimney) for warming hot water radiators fixed in the rooms requiring warmth.

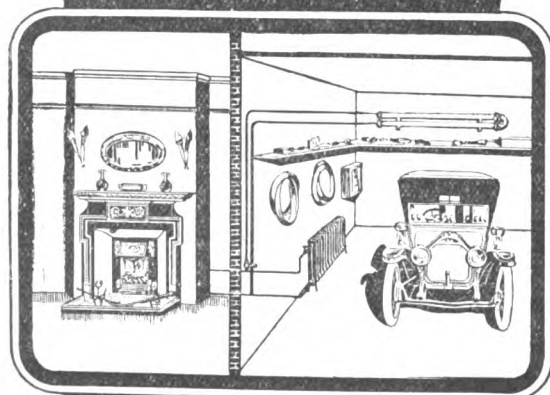
INEXPENSIVE IN
FIRST COST, AND
EASILY FIXED



WARMING TWO BEDROOMS
AND THE HALL FROM THE
SITTING-ROOM FIRE.



WARMING A LARGE ROOM
FROM ONE OPEN FIREGRATE



WARMING A MOTOR HOUSE
OR CONSERVATORY FROM
THE SITTING-ROOM FIRE

WARMS the cold
parts of large rooms
in

PRIVATE HOUSES
BILLIARD ROOMS
SCHOOLS, OFFICES
MEETING ROOMS
GOLF CLUB ROOMS
HOSPITAL WARDS
CONSERVATORIES
MOTOR HOUSES
ENTRANCE HALL
STAIRCASES, &c.

Write for 96 - page
SPECIAL BOOK
"C," Domestic Science
Series, "HOW TO
WARM AND
VENTILATE THE
HOME." Sent Post
Free on application.

PATENTEE AND

SOLE MANUFACTURER

JAMES D. PRIOR EMPIRE WORKS HOLLIDAY ST. **BIRMINGHAM.**

free working of a metal ball which is inserted, and which, when the lock is unfastened, rests at the bottom of the groove. In the face plate an opening is cut of a size sufficient to allow the entrance of the striking plate; this striking plate is formed with a slot cut in the top surface or in the side. The action is as follows: The striking plate is fixed on either the door or the door casing; if fitted on the door casing, the lock is fixed on to the door, and in such a position that, when the door is closed, the striking plate enters the opening in the face plate of the lock and strikes against the ball resting at the bottom of the groove. The ball slides along the lower surface of the groove in an upward direction until the slot in the striking plate is sufficiently inside the lock, when the ball falls into the striking plate slot, and against the upper side of the lock groove, or against the face plate, and thus securely locks the door. Fig. 1 is a side view of striking plate as arranged for sliding doors. Fig. 2 is the inside of lock on the release side, showing position of ball, release bar, position of handle and locking bar. Fig. 3 is the face plate of lock as drawn in Fig. 2, showing part cut away for entrance of striking plate, position of ball, end of locking bar, and end of release bar. Fig. 4 is the striking plate as used with Fig. 5. Fig. 5 is a side view of inside of lock arranged for a hinged door with the part cut away for entrance of striking plate at the side of lock, also an arrangement for working the locking bar and release bar in conjunction with each other, and with a top lever handle. Fig. 6 is a view of striking plate and lock arranged so that the ball will slide out of the slot when door handle is pulled and the locking bar drawn out of the lock groove. (a) Is the metal box, (b) the groove, (c) the face plate, (d) the ball, (e) a portion of face plate cut away, (f) the slot in striking plate, (g) the releasing bar, (h) the locking bar, (i) the spring at back of release bar to bring handle into correct position, and (j) the handle. November 26, 1913.

PATENT SPECIFICATIONS PUBLISHED DECEMBER 18, 1913.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 27,610. Nov. 30, 1912.—L. L. Leduc, 3 Villa de la Terrasse, Paris. Electro-magnetic bolts for locks.

27,667. Dec. 2, 1912.—Edwin Harvey, 50 Exmouth Street, Swindon, Wilts. Means for hanging window sashes.

29,473. Dec. 21, 1912.—A. A. Barron, 36 Whitfield Street, Tottenham Court Road, W. Ventilators.

689. Jan. 9, 1913.—Charles Green, junr., 21 Northdown Street, King's Cross, and R. S. Hiscock, 18 Tivoli Road, Crouch End, N. Syphons of water waste preventing cisterns.

759. Jan. 10, 1913.—The Unit Engineering Co., Ltd., and F. A. Brown, all of 45 Victoria Buildings, Victoria Street, Manchester. Electric water heaters.

1,367. Jan. 17, 1913.—H. E. Scott, Holme Wood, North Eastern Road, Thorne, near Doncaster. Means for holding window sashes in position.

1,549. Jan. 20, 1913.—George Clegg, Bridge End Iron Works, 2 Wheelers Court, Belfast. Coal savers for domestic firegrates.

1,764. Jan. 22, 1913.—George Stockdale, Bestwood Park, Arnold, Notts. Burglar alarm device or alarm guns.

1,875. Jan. 23, 1913.—F. P. H. Collins, 10 Grove Street, Bootle, Lancs. Fastening device for doors, windows, and the like.

2,719. Feb. 14, 1913.—O. G. Frigg, 62 Adeline Street, Newport, Mon. Rustproof semi-transparent enamel.

3,475. Feb. 11, 1913.—T. E. Thain, 3 The Avenue, Whitchurch, Glam. Construction and fixing of shoes for piles.

3,485. Feb. 11, 1913.—H. W. Cox, 67 Mount Street, Notts. Apparatus for automatically supplying fluid disinfectant or the like to water closet flushing cisterns.

3,643. Feb. 12, 1913.—D. M. Nesbit & Ashwell and Nesbit, Ltd., Barkby Lane, Leicester. Radiators for heating buildings and the like and fittings for same.

4,023. Feb. 17, 1913.—Whitman Symmes, United Comstock Pumping Association of Virginia, Storey, Nevada, U.S.A. Agitating and mixing apparatus for liquid slimes.

4,896. Feb. 26, 1913.—Janny Goepper & Otto Geiger, Oberturkheim, Wurtemberg. Process for preparing a tough viscous mass especially for the asphalt industry.

8,829. April 15, 1913.—F. W. Schroeder, 388 Kennington Road, S.W. Pin-tumbler locks.

5,430. March 4, 1913.—J. E. Slack, 68 Canonbury Park South, and the British Mannesmann Tube Co., Ltd., of Salisbury House, London Wall, E.C. Service connectors to pipe mains.

7,877. April 3, 1913.—Dated under International Convention April 4, 1912. Jacques Moreau, 5 rue Lafitte, Paris. Radiators.

9,151. April 18, 1913.—Thos. Lant, Llanelwedd, Basalt Quarries, Builth Wells, Mid-Wales. Mixer (especially suitable for intimately mixing pulverant or granular materials with or without a liquid such as is used for producing the paste or sludge required for the manufacture of artificial stone or marble).

9,301. April 21, 1913.—A. S. Anderson, Camelon Iron Co., Ltd., Camelon Iron Works, Falkirk. Domestic fire-places.

12,795. June 2, 1913.—J. T. Spence, 36 Claribel Street, Liverpool. Expanding bolt or fastener.

Any of the above specifications may be obtained from J. D. Roots & Co.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

Christchurch Priory.

SIR,—Some three months ago attention was drawn in your columns to the fact that a sum of money had been bequeathed for the "restoration" of the Lady Chapel at Christchurch Priory. Naturally some apprehension was felt lest this bequest might lead to ignorant and injudicious dealing with the fabric, such as unfortunately has taken place in many instances. The Vicar and churchwardens, to whom the money was entrusted, had not, however, at that time formed any plans for dealing with the matter. They considered that the wisest course they could take would be to seek the fullest advice and information before coming to any conclusion.

It will, perhaps, come as a relief to many to know that they have now requested Mr. W. D. Caröe to furnish a report upon the whole subject. As, in addition to his being entrusted with the care of Canterbury and Southwell Cathedrals, and his work as architect to the Ecclesiastical and Charity Commissioners and to other bodies, Mr. Caröe has just been called in as advisory architect in connection with the preservation of St. Paul's Cathedral, the Vicar and churchwardens felt that they could not do better than secure his assistance, and they trust that his well-known skill and experience as a careful and conservative restorer will be a sufficient guarantee that everything done under his direction will be wisely and thoroughly executed.—Yours, &c.,

J. COOKE-YARBOROUGH (Vicar of Christchurch).

December 18.

Increment Value Duty.

SIR,—The Chancellor of the Exchequer has written to the Birmingham Chamber of Commerce, stating that no increment value duty is charged on buildings, fixed plant, or machinery, and that all the value attributable to these things is eliminated before any tax is levied. For three years the Land Union has been engaged in trying to prevent the Commissioners of Inland Revenue from charging increment value duty unless the value of the bare land, independently of buildings, &c., has risen in value. In the Plymouth, Richmond, and Palmer's Green test cases it was admitted on behalf of the Crown that the value of the land had not risen a penny; nevertheless increment value duty was claimed. Is it not mockery to suggest in these circumstances that houses are not being taxed, and that the value of the house is eliminated before duty is charged? Such a statement is calculated to mislead. It is an attempt to throw dust in the eyes of the business world, who realise that fixed plant and machinery are, within the meaning of the Act, in the same category as houses, and that if owners of houses are to be taxed when they sell their houses for more than the Commissioners think they are worth, it will soon be the turn of owners of machinery to suffer the same fate.—I am, Sir, yours obediently,

C. H. KENDERDINE,

Secretary, the Land Union.

**MOTOR TRACTION
MEANS — MORE — TRADE.**

Why not Buy the Best?

**THE FOUR BEST
COMMERCIAL CHASSIS**

are

- (1) The L.G.O.Co.'s "B" TYPE.
2,500 of these vehicles at work in London. *Verb. sup.*
- (2) The DAIMLER 3-TONNER.
The acme of refinement in Motor construction.
- (3) The THORNYCROFT 30-cwt. CHASSIS.
(2 tons gross). It's THORNYCROFT—that's good enough.
- (4) The HURTU LIGHTNING 15-CWT.
THE Delivery Van. For Drapers and kindred trades, or for Commercial Travellers' purposes, this Chassis stands above all others.

Whatever your requirements, one of these types **MUST** fit you.
THERE ARE NO OTHERS.

For particulars, honest advice, price, etc., address **ALL** your enquiries to:—

STUART A. CURZON,
98 VICTORIA STREET, LONDON, S.W.
Telegrams: "Curzonold, Sowest, London." Telephone: Regent 2043.

*N.B.—All above fitted with the best solid Tyres.
i.e., Wood-Milne Steelrubber—other makes to order.*



The principal feature of the CHAMPION CHIMNEY POT is its magnificent updraft.

For many years the "Champion" has been specified by LEADING ARCHITECTS, and has sold in large numbers.

Architects speak highly of its SMOKE-CURING and VENTILATION qualities, and admit it to be of excellent design.

Catalogues with views and particulars on application to The Patent Chimney Pot Co. Ltd., 105 Albion St., LEEDS.



**Stained Glass
Windows &
Leaded Glazing.**

Specially designed in old Colourings, to include Armorial Bearings, &c., if desired.

Estimates and designs submitted free for all kinds of work, together with testimonials showing that work of highest grade may be relied upon.

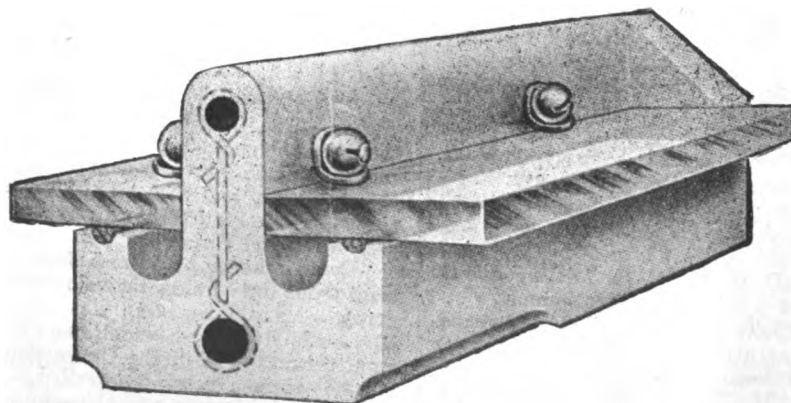
Andrew Stoddart,

The Studio, 7 Castle Rd.,
Telephone: No. 261 Y. Nottingham.

(1)

**THE
Universal Concrete & Construction Co. Ltd.**
PATENT FERRO STONE GLAZING.

IMPROVES WITH
AGE.



QUICK DELIVERY
ASSURED.

Beautiful in Appearance. 25 per cent. Lighter than other Glazing. Fireproof. Acid Fume Proof. Reflects the Light. Economical. Everlasting.

Designs and Estimates Free on Application.

20 VICTORIA STREET, WESTMINSTER, S.W.

Telephone: 1967 VICTORIA.

INDEX.

Articles.

Articles—continued.

Articles—continued.

Abbey Church of Plainpied, Cher, France, 211
 Action of Alkaline Water on Lead, 343
 Alfred East Art Gallery, Kettering, 132, 161
 Ancient Monuments Bill, 1913, 11
 Architect's Claim against a Brotherhood, 554
 Architects' Grievances against the Model By-laws, 174
ARCHITECTURAL ASSOCIATION, THE—
 Architecture of Portugal, 545
 Nationality in Art, 449, 475
 Presentation to Mr. Maule, 84
 Presidential Address, 401
 School Prizes, 84, 401
 Some Architectural Notes in Piedmont, 497, 521
 Architectural Inlay, 405, 428, 452
 Architecture in St. Petersburg, 13, 29, 53
 Architecture of London Highways, 193, 308
 Architecture of Railway Stations, 133, 156, 170, 189, 209
 Art in London, 568, 592
 Atavism in Architecture, 496
 Atmospheric Pollution in Exeter, 59
 Baumer, Mr. L., at the Fine Art Society, 533
 Beaux-Arts Atelier, 289
 Bedford College for Women, London, 40
 Belcher, the late Mr. John, 447
 Big Belgian Churches, 286
 Birmingham and Building By-Laws, 408
 Birmingham Architectural Association, 409, 430, 478
 Birmingham Building Trades Employers' Association, 509
 Board of Education Art Examinations, 239
 Boswell's House in Great Queen Street, London, 568
 British Fire Prevention Committee, 71, 387
 British Museum, 158
 British Scholarships at Rome, 147
 British Sculpture and Mural Painting, 234
 Building By-Laws and the B.C.A. Bill, 594
 Building Cheap Cottages, 200
 Building in Winnipeg, 316
 Building Unit in the Middle Ages, 35
 Cambridge School of Forestry, 172
 Charles Cameron, 330, 353
 Child-Artist at Dudley Galleries, 386
 Chinese Architecture and Building, 329
 Church Plate, 411, 429
 City Fire Risks, 511
 Clifford Chambers, Glouce., 257
 Commons and Footpaths Preservation Society, 23
 Competition News, 4, 28, 76, 100, 124, 148, 170, 189, 208, 232, 256, 279, 304, 328, 352, 376, 400, 424, 448, 472, 496, 520, 544, 568, 592
 Concrete Institute, 480
 Convalescent Home, Bushey Heath, 206
 Copies of Old Masters by M. Maroger, 52
 Corrosion and Rusting of Iron, 526
 Cortile of Palazzo Vecchio, Florence, 593
 Cottage Problem, the, 383, 434, 457
 Cricket Match, A.A. v. R.I.B.A., 32
 Crystal Palace and "Times" Fund, 35
 Curse of Civilisation, a, 334
 Daylight Illumination and School Planning, 579, 597
 Deller, Mr. Lawrence, 472
 Development of New Areas on Town Planning Lines, 61
 Disintegration of Brick Walls, 233

Dublin Municipal Art Gallery, 200
 East Africa Architectural Association, 256
 Ecclesiastical Architecture in Central Italy, 267, 290, 387, 603
 Egypt, Recent Discoveries in, 263
 England's Acres: the Story of Land Ownership, 177, 198, 212
 English Neo-Classic Architects, 409, 483, 529, 577, 599
 Engravings and Etchings of London, 196
 Etchings and Engravings by Auguste Lepere, 387
 Evolution of Gas Lighting and Heating, 332
 Excavations at Glastonbury Abbey, 109
 Excavations at Wroxeter, 265
 Fontevault Church, near Saumur, 83
 Furniture, 313
 Gas Industry in Relation to Smoke Abatement, 363
 Gatehouse, Little Moreton Hall, Cheshire, 591
 Ghent Exhibition, the, 83
 Glasgow Building Trades, 441
 Glasgow Cathedral, South Porch, 350
 Glasgow Institute of Architects, 393
 Hints to Students on Nature Sketching, 447
 Home of Dorothy Vernon, the, 305
 House Drainage Law, 506, 531
 House of Commons Ventilation, 219
 Housing Co-Partnership, 504
 Housing in St. Petersburg, 380
 Illuminating Engineering Society, 11
 Institution of Civil Engineers, 434
 Institution of Gas Engineers, 32
 International Society of Sculptors and Painters, 507
 Italian Monument of English Origin, an, 77
 Japanese Colour Prints at South Kensington, 471, 498
 Kelvin Memorial, 60
 Lake Villages near Glastonbury, 285
 Landscapes at Dowdeswell Galleries, 12
 L.C.C. Building, 376, 386
 L.C.C. Reinforced Concrete Regulations, 75
 L.C.C. Schools Public Competition, 28
 Leeds and Yorkshire Architectural Society, 502, 568
 Licensed Architects in Illinois, U.S.A., 264
 Lighting of Schools and Libraries, 81
 Lights, Considerations on the Brightnesses of, 379
 "Lister-Bruston" Light and Power Plant, 71
 London Arterial Roads, 499
 London Association of Master Decorators, 197, 337
 London Association of Master Stone-Masons, 338
 London By-Laws for Lamps, Signs, &c., 423
 London County Council, 28, 52, 76, 100, 123, 148, 376, 496, 543, 567
 London Master Builders' Association, 288
 London Orphan Asylum, Watford, Swimming Bath, 509
 London Salon, Allied Artists' Association, 135
 London Society, the, 196
 London University College, 32
 London University Extension Lectures, 319
 Mall Improvement, the, 100
 Manchester Society of Architects, 361
 Manitoba's Minerals, 317
 Mary Curzon Hostel for Women, 533
 Mediæval Walled Cities, 523
 Menpes, Mr. M., Dry-Points at Dowdeswell Galleries, 38

Metals for Structures, 281
 Municipal Engineers and Surveyors, Work of, 39
 National Gas Exhibition, 312
 National Registration of Plumbers at Glasgow, 432
 Nature of Beauty, the, 552
 Notes on Books, 63, 223, 289, 559
 Nottingham and Derby Architectural Society, 11, 504, 602
 Ockendens and Hornchurch, Essex, 550
 Offices for Emigration Board, Omsk, Siberia, 389
 Old Oak Estate, Hammersmith, Roads on, 148
 Oxted and Limpsfield, 377
 Patent Opposition Case, 132
 Pershore Abbey, 238, 266
 Pictures and Drawings by Bonington and Cotman, 12
 Portraits at the French Galleries, 458
 Post-Impressionist and Futurist Exhibition, 552
 Principal or Agent? 41
 Prior's Patent Heater, 437
 Public Buildings in New South Wales, 236
 Pump, a New Suction, 266
 Rackham, Mr. A., at the Leicester Galleries, 415
 Rainham, Wennington and Aveley, 111
 Recent Progress in Gas Fire Science, 310
 Reinforced Concrete Wall and Column Footings, 241, 259
 Reinforced Pile Foundations for Blast-Furnaces, 307
 Renaissance Architecture, 328
 Restrictive Building Covenants, 157
 Revenue Bill, the New, 81
 Royal Academy Schools, 544, 574
 Royal Archaeological Institute, 80, 101, 125, 149
ROYAL INSTITUTE OF BRITISH ARCHITECTS—
 Belcher, the late Mr. John, 473
 Examinations in Design, 7, 32, 80, 393, 496, 592
 President's Address, 425
 Repair of Ancient Buildings, 570
 Wesleyan Methodist Hall, Westminster, 473
 Royal Institute of the Architects of Ireland, 576
 Royal Photographic Society of Great Britain, 507
 Royal Society of Portrait Painters, 87
 Runtz, the late Ernest, 374
 Rural Housing, 41, 110
 S. Sophia and its Dome, 223, 459
 St. George's Church, Benenden, Kent, 448
 St. Mary's Church, Beverley, 64
 School of the Future: Lighting, Heating, and Ventilation, 355
 Scraping and Cleaning Sewage Rising Mains, 265
 Sheffield Society of Architects and Surveyors, 363, 576
 Sheffield University and Teaching Architecture, 9
 Silhouettes at South Kensington, 76
 Sketches by Mr. E. Borough-Johnson, 328
 So-called "Crystallisation" through Fatigue, 315
 Society for Protection of Ancient Buildings, 243

Articles—continued.

SOCIETY OF ARCHITECTS, THE—
Church Plate, 411, 429
Courage in Colour, 554, 572
Presidential Address, 454

Society of Engineers, 221

Spanish Old Masters at the Grafton Galleries, 382

Squalid London and the Indifferent Londoner, 53

Stained Glass and Stained-glass Cartoons, 601

Steel Sheet Piling, 5

Stock Exchange of Ancient Rome, 284

Stock Prizes for Architecture, 400

Stone Circles, the Age of, 511

Suburban and Residential Estate Development, 263

Summer Residence near St. Petersburg, 376

Summer School of Town Planning, 124

Supplying Goods to Architect's Order, 461

Survey of London Memorials, 549

Surveyors and Bills of Quantities, 89

Tarkhan Cemetery, Excavations at, 36

Temporary Buildings in Relation to By-Laws, 578

"The Architect" Students' Sketching and Measuring Club, 26, 123, 209, 326, 471, 520

Town Planning, 385

Town Planning Act in London, 123

Town Planning of Greater London, 10

Trades Training Schools, 215

Treatment of Woodwork in Decoration, 359

Trees of Manitoba, 381

Two Fourteenth-century Manor Houses, 479

University of London, 256, 289

Ventilation of Leeds Schools, 8

Via Appia and Aqueducts of Ancient Rome, 259

Victoria Memorial, Calcutta, 43

Waltham Abbey, Cross, and Epping Forest, 128

Whitehall in the Reign of Charles I., 325

Whitelaw, the late J. M., 32

Window in Powerscourt House, Dublin, 231

Winter Exhibition of Royal Water Colour Society, 553

Contract Reporter.

Activity at the Spitalfields Foundry, Aug. 1

Beeston Sewerage, Oct. 10

British Fire Prevention Committee, Oct. 13

Competition News, July 18

Corbridge Excavations, Sept. 19

Darmer Casement Window, Aug. 29

Electric Light Fixtures, Sept. 5

Electrical Supply in America, Dec. 12

Exhibition at the Crystal Palace, July 25

Garden Cities in Russian Poland, July 18

Glasgow Building Trade Prosperity, Oct. 17

Heating and Warming in Germany, Sept. 5

Highways, Dec. 5

Housing in Naples, Oct. 3

Imperial Convertible Firegrate, Nov. 21

Increased Cost of Living, Aug. 15

King Edward London Memorial, Oct. 31

L.C.C. Prizes for Architectural Studies, 1913, Sept. 19

London Master Builders' Association, Nov. 28, Dec. 26

London Master Stone Masons Dec. 19

London Plasterers' Strike, July 11

London University School of Architecture, Aug. 1

Manchester Town Hall Extension, Aug. 29

Metal Craftsmanship, Nov. 28

"National" Filters, Oct. 31

Newcastle Building Exhibition, Aug. 22

Osram Lamp, Oct. 10

Proposed L.C.C. Garden Suburb, Oct. 24

Provincial Police Orphanage, Redhill, July 25

Public Baths and Washhouses, Aug. 22

"Pudlo" Booklet, a, Sept. 19

Reduction of Electric Lamp Prices, Sept. 26

Scottish Building Trades' Federation, Sept. 26, Dec. 19

Signature of Buildings, Dec. 5

Society of Engineers, Dec. 26

Steamless Heating, Oct. 17

Style in American Architecture, Aug. 8

Summer Palace at Yalta, Crimea, Sept. 5

Switland Hall, Leics., Sept. 12

"Victorite" Plastering Cement, July 25

What is White Lead? July 11

Workmen's Compensation, Oct. 3

Correspondence.

Apprentice, the Industrious, 443

Architects and Surveyors' Approved Society, 587

Architecture of London Highways, 227

Architecture of Railway Stations, 203

Belcher, the late Mr. John, 467

Centenary Memorial of Sir John Moore, 95

Christchurch Priory, 611

Church Building Society, the, 71

Crystal Palace and the Strand, 183

Decay of Brick Walls, 275

Disfigurements, 539

First User of Lithography, 443

Flat Concrete Roofs, 515

Forde Abbey Tapestries, 119

Franklin Memorial Tablet, 491

Greater London and Main Roads, 539

Historical London Church, an, 587

Increment Value Duty, 611

Indian Brickwork, 443

Legality of Earth Closets, 539

London Society, the, and the Regent's Quadrant Improvement, 251

Northern Junction Railway, the—and After, 23

Pershore Abbey Church, 491

Presidential Address to R.I.B.A., 1913, 537

Prof. Petrie's Collection, 47

Proposed New Government Buildings, Ottawa, 299

Registration in New Zealand, 515

Revenue Bill and Land, 183

Scapa Society, the, 419, 443

Sheet Piling and its Uses, 23, 183

Sheffield University Architectural Tour in France, 47

Signature of Buildings, 563

Squalid London, 119

Statutory Registration of Architects, 227, 515, 587

Steel Sheet Piling, 163

Undeveloped Land Duty, 251

Value of Thatched Roofs, 587

Wooden Water Pipes, 347

Illustrations in Text.

Academy of Arts, St. Petersburg, 17

Alfred East Art Gallery, Kettering, 160 1

Almshouses, Campden, Glouce., 283

Architectural Inlay, 405 8, 429, 452-5

Aveley Church, Essex, 115

Bampfylde House, Exeter, 104

Bank of Siberia, St. Petersburg, 54

Basilica Emilia, Rome, 264

Bath-House, Tsarskoie Sielo, Russia, 330, 332, 335, 339

Bay Window, Campden, Glouce., 233

Bed and Cradle, Haddon Hall, 310

Bedchamber, Tsarskoie Sielo, Russia, 341

Bedford College for Women, London, 40

Belcher, the late Mr. John, 447

Belhus, Essex, 115

Brass, North Ockenden Church, 551

Brass, Oxted Church, 373

Brick Disintegration, 233-4

Bungalow, a Californian, 254

Campden, Glouce., Stone Door Head, 285

Cantelet Château, Normandy, 166

Cerdoff Coal and Shipping Exchange, 279-80

Cartoon of Window at Eyam, Derbyshire, 9

Cartoon of Window at Harrow, 3

Chalice, Clifford Church, Glouce., 258

Chicago and North-Western Railway Station, Chicago, 195

Church Spire, Bec Guerard, Normandy, 186

Clifford Chambers, Glouce., Manor House, 257-3

Clifford Chambers, Glouce., Old Rectory, 258-9

Convalescent Home, Bushey Heath, 206-7

Cottage near Cork, 99

Court in Cathedral Close, Exeter, 101

Croisset Farm, Normandy, 166

Crosses, Clonmacnoise and Hartlepool, 408

Details from St. Catherine's Church, Brandenburg, 230

Dining-Room, Tsarskoie Sielo, Russia, 340

Darmer Casement Window, C.R. Aug. 29

Dresden Station, 170

Evesham, the Almonry, 292

Exeter Guildhall, 107

Fire Station, Darlington, N.S.W., 237

Fontevault, a Street in, 83

Fontevault Abbey, 87

Fontevault Parish Church, 83-6

Fontevault, the Moiré, 89

Frankfort Station, 171

Gallery, Tsarskoie Sielo, Russia, 330-1, 333, 337

Illustrations in Text—continued.

Gatehouse, Little Moreton Hall, Cheshire, 591

Gateway of Admiralty, St. Petersburg, 15

Glasgow Cathedral, South Porch, 351

Glastonbury Abbey, Lady Chapel, 108

Glastonbury Abbey, Plan, 110

Glastonbury Abbey, Refectory Sub-Vault, 109

Grand Central Station, New York, 189-90

Grendon Almshouse Infirmary, Exeter, Plan, 280

Haddon Hall, 305-13

Hampstead Garden Suburb, 504

Handrail Termination, Poole, Dorset, 424

Hanging Corner Cabinet in Mahogany, 61

Harold's Bridge, Waltham Abbey, 131

Hotel Astoria, St. Petersburg, 53

Houghton-le-Spring, Vestry and Almshouses, 375

Hour-Glass, South Ockenden Church, 551

Hour-Glass, Wennington Church, Essex, 112

House at Grendon, Northants, 494

Houses in St. Petersburg, 15, 29-31, 51, 55-7

Imperial Convertible Firegrate, Nov. 21

Inlaid Mud Walls, Chaldæa, 405

Italian Screen Panels, Bitonto and Ancona, 407

Japanese Colour Prints, 498-9

Jumièges Abbey, 167-8

Law Library, Exeter, 106

Leipzig Memorial, 436

Leipzig Station, 172

Liverpool Garden Suburb, 505

London Orphan Asylum, Watford, Swimming Bath, 508

Lyons Station, Paris, 171

Modern-Antique Furniture, 519, 21, 3, 5, 7, 9, 31-3

MODERN EUROPEAN ARCHITECTURE—
Bad Kissingen, Public Buildings, 366

Cologne New Town Hall, 180-1

Country House at Baarn, Holland, 218-21

Country House at Dahlem, near Berlin, 581

Hôtel Savoia, Florence, 64

House at Christiania, 461

House at Grunewald, Berlin, 412-3

House, Boulevard Montmorency, Paris, 268

House in Grunewald Suburb, Berlin, 580

Hunting-Box at Bujak, Hungary, 316-7

Markgraf Karl-Friedrich House, Pforzheim, 269

New Evangelical Church at Charlottenburg, 605

Post Office, Alençon, 244-5

Rathaus at Rudolstadt, 604

Textile Industries Association Premises, Paris, 364

Villa Burgisser, Florence, 155

Villa near Trebizonde, 153

Monumental Brass in Aveley Church, Essex, 113

Moulin à Eau, Grand Tendos, Normandy, 187

Northborough Manor House, Lincs., 479-81

Offices for Emigration Board, Omsk, Siberia, 388-9

Palace Square, St. Petersburg, 16

Patent Heater, 437

Pavements, San Miniato and Rheims, 407-8

Pavilion, Anitchkov Palace, St. Petersburg, 17

Pavilion of the Three Graces, Tsarskoie Sielo, 354

Pavlosk Palace, Russia, 355-9

Pennsylvania Railway Station, New York, 191

Powder Pitcher, Limpsfield Church, 378

Planned Abbey Church, Cher, France, 210-3

Pump, a New Suction, 267

Rainham Church, Essex, 111

Reigate, House at, Plan, 28

Reinforced Concrete Diagrams, 242, 259-62

Residential Flats, Avenue Elisee-Reclus, Paris, 135-7

Ruins of Palace of Prince Razoumovsky, Russia, 361

S. Maria de Gradillo, Ravello, 452

S. Martin d'Ainay, Lyons, 453

S. Paul, Issore, France, 454

S. Sophia, Constantinople, Interior, 460

S. Sophia, Tsarskoie Sielo, 360

St. Andrea, Vercelli, Piedmont, 77-8

St. Ethelbert's Gateway, Norwich, 455

St. Mary, Beverley, 65

St. Mary's Porch, Oxford, 495

St. Nicholas Priory, Exeter, the Undercroft, 103

St. Paul's Girls' School, Hammersmith, W., Plans, 569

St. Petersburg Architecture, 13-7, 29-31, 51, 53-8

Illustrations in Text—continued.

St. Petersburg Commercial Bank, 31
 Saintbury Cross, Gloucs., 291
 School of Peter the Great, St. Petersburg, 58
 Sergiev Cathedral, St. Petersburg, 14
 Servian Agger on the Esquiline, Rome, 405
 Sevenhampton Manor, Gloucs., 292
 Silvered Copper Wall Sconce, *C.R.* Nov. 28
 Smolny Monastery, Russia, 13
 South Ockenden Church, 550-1
 Steel Sheet Piling, 5-7
 Summer Palace at Yalta, Crimea, *C.R.* Sept. 5
 Summer Residence, near St. Petersburg, 376
 Swithland Hall, Leics., *C.R.* Sept. 12
 Sydney University, Veterinary Hall, 236
 Tarkhan Cemetery, Finds in, 36-8
 Tchernishev Bridge, St. Petersburg, 16
 Temple of Friendship, Tsarskoie Sielo, 353
 Tsarskoie Sielo, Russia, 330-41, 353-61
 Tuckers' Hall, Exeter, 105
 Union Station, Baltimore, Md., 193
 Union Station, Washington, D.C., 192, 194
 Vicars' Choral Hall, Exeter, 102
 Villa Rosa, Corlanzone, Italy, 555-7
 Waltham Abbey Church, 129-30
 Waltham Cross, 130-1
 Warren House, Stanton, Gloucs., 293
 Wennington Church, Essex, 112
 Weston-sub-Edge, Gloucs., 286, 288, 374
 Whitehall in 1648, 326
 Willersey, Bell Inn, 282
 Window in Powerscourt House, Dublin, 232
 Woodcroft Castle, 481-2
 Wooden Water Pipes, 347
 Work Done at Trades' Training Schools, London, 215-7

Leading Articles.

Architectural Association Excursion, 1913, 165, 185, 205
 Architectural Work in India, 121, 145
 Architecture in the West Country, 277
 Architecture, the Outlook of, 445
 Art, the Morality of, 301
 Bill or Charter? 541
 Cheap Cottage, the, 469
 Colour Decoration of Architecture, 517
 Delhi, the New, 49, 73, 97
 Gas, 373
 Greek Art and National Life, 349
 Historical Monuments of Buckinghamshire, 325
 Ideality in the Home, 397
 Master Mason Theory, the, 421
 Modern Systems of Heating, 25
 On Brick, 229
 Protection of Ancient Buildings, 493
 Reinforced Concrete in London, 1
 Repair of Ancient Buildings, 589
 Students' Drawings at the Royal Academy, 565
 What is Art? 253

Legal.

Bowling v. Sanders, 27, 41
 Buckley v. Millstreet District Council, 27
 James v. Otis Elevator Co., 27
 Ramsden & Carr v. Chessum & Sons, 461
 Sobey v. Sainsbury, 157
 Walker v. Sur & Ors., 554

Notes and Comments.

A.A. Excursion to Rouen, &c., 146
 Acoustics in L.C.C. Chamber, 146
 Admiralty Arch, London, 98, 422
 Amateurs and Accidents, 27
 Ancient Monuments Bill, 27, 51
 Appeal under Finance Act, 1909-10, 519
 Approximate Estimates, 122
 Architect not Principal, 27
 Assessor's Difficulties, 470
 Atmospheric Pollution in Birmingham, 231
 Baths of Caracalla, 423
 Birmingham Council House, 74, 446
 Birmingham Town Planning, 4, 255, 327
 Board of Trade Housing Report, 188
 British Association Meeting, 1913, 122
 British Fire Prevention Committee, 255, 327
 British School at Rome, 302

Notes and Comments—continued.

Buckingham Palace, 422
 Building Dispute in London, 279
 Burns, Mr., and Rural Housing, 542
 Calculator, a New, 399
 Cambridge University School of Architecture, 123
 "Can Architecture be Taught?" 74
 Canada and the New London Offices, 447
 Chancellors' Faculties for Churches, 327
 Cheap Cottages, 398
 Cheap Schools in West Sussex, 74
 Chester Cathedral Refectory, 187
 Christchurch Lady Chapel, 206
 Concrete Institute, 471
 "Connoisseur, The," 27, 123, 208, 352, 447, 567
 Contract not under Seal, 27
 Corrugated Iron v. Thatch, &c., 446
 Corstopitum, 51
 Costliness of Cottage Property, the Reason of, 208
 Coventry Housing, 168
 Crystal Palace as a Folk Museum, 188
 Devon School Building, 494
 Devonshire House and the Land Tax, 590
 Domestic Water Charges, 566
 Double Naves in Churches, 208
 Dublin Art Gallery, 3, 122, 137, 278
 Dublin, Fall of Houses in, 279
 Dublin Strike and Builders, 519
 Edinburgh New Public Offices, 254
 Edinburgh Tenements, 208
 Ely Cathedral and Fire Prevention, 255
 English Ceramic Society, 399
 Estimating in the United States, 231
 Farm Labourers' Cottages, 98
 Fatal Accident at Workington, 362
 Finance Act, Injustice of, 3
 Fire Doors, 327
 Fire Protection in United States, 520
 Flint-knapping in Suffolk, 3
 Glasgow and Fine Art, 278
 Glasgow Municipal Buildings Competition, 254
 Glasgow Parish Council, 352
 Glasgow's Bridges, 50
 Greater London's Roads, 168
 Grecian Antiquities, a Find of, 169
 Haxian Republic and Building, 422
 Health and Ventilation, 470
 Health Temples in Ancient Greece, 590
 Heraldry Exhibition at Glasgow, 543
 Historic Mantelpiece, a, 520
 Historical Monuments and their Records, 352
 Hospital Planning, 50
 Housing in Dunfermline, 145
 Housing Legislation, 146
 Housing Prof. Adshead and Mr. L. Weaver on, 518
 Indian Architecture, 3
 Islington Statistics, 188
 Jarvis Travelling Student-shin, 399
 King Charles Statue, Charing Cross, 494
 Knossos Excavations, 543
 Labourer's Cottage for £100, 352
 L.C.C. Central School of Arts and Crafts, 256
 Lithographic Exhibition, 398
 Liverpool Town Hall, 494
 Local Government Board and Cottage Requirements, 208
 Local Government Board's Circulars, 303
 London School of Architecture, the New, 471, 494
 London Southern Embankment, 278
 London University and Somerset House, 518
 London University School of Architecture, 74
 Londoners and Civic Pride, 188
 Lord Milner and the Building Trade, 351
 Lord Rosebery and the Calton Hill, Edinburgh, 254
 Lumsden Case, the, 122
 Manchester Autumn Exhibition Abandoned, 207
 Manchester Town Hall, 208, 231, 327
 Map of London, a New, 399
 Meroë Excavations, 51
 Ministry of Fine Arts, 146, 518
 Newcastle-upon-Tyne Town Hall, 302
 Norland Old Hall, Yorks, 423
 Official Guides at Museums, 302
 Overcrowding and Census Returns, 169
 Outside Staircases, 169
 Paisley Abbey, 327
 Palatine Excavations, 567
 Peace Palace, The Hague, 122
 Persian Decoration, 470
 Philipps, Mr. M., and Modern Architecture, 422, 446
 Port of London Authority and Land Valuation, 398
 Pre-Raphaelites at the Tate Gallery, 51
 Prix de Rome Prizeman, 398
 Provincial Papers and New Buildings, 254

Notes and Comments—continued.

Reclamation of Sandy Land, 231
 Reinforced Concrete for the Stationery Office, 187
 Revenue Bill, the New, 75, 170
 R.I.B.A. Business Meetings, 542
 Richmond Castle, Yorks, 255
 Richmond Disfigurement, 496
 Roads in Nottinghamshire, 255
 Robbery of Old Mantelpieces, 207
 Rodin's "Burghers of Calais," 446
 Road-Screens in London Churches, 99
 Royal College of Art, 302
 Royal Sanitary Institute Lectures, 168
 Royal Scottish Academy Exhibition, 231
 Royal Technical College, Glasgow, 256
 Rural Co-Partnership Housing and Land Council, 399
 Rural Housing, 98
 Rural Housing at Chertsey, 255
 St. Paul's Bridge, 566
 St. Paul's Cathedral, 2, 90, 163
 St. Saviour's, Pimlico, 99
 Schools of Art and the Education Board, 351
 Scottish Museum and Sunday Opening, 590
 Senefelder Club, the, 398
 Sheffield and Space at Back of Houses, 169
 Sheffield University School of Architecture, 75
 Sir J. Bland-Sutton's Dining-Hall, 470
 Slate Quarrying in Wales, 3
 Smoke Abatement, 278
 Somerset House for London University, 518
 Stationery Office, the New, 187
 Stonehenge and Old Sarum, 231
 Strike in Building Trade in London, 187
 Structural Steelwork, 123
 Subsidising Cheap Cottages, 518
 Sunderland Training College, 470
 Thatch v. Corrugated Iron, 169
 Tinworth, the late G., 254
 Town of the Future, the, 231
 Town Planning in Greater London, 26
 Town Planning Institute, 495
 Town Planning Statistics, 188
 Trade Dispute at Liverpool, 302
 Trades Unions and New Methods of Building, 169
 Trafford Park, Manchester, and the Land Tax, 327
 Training Young People in Art Appreciation, 231
 Tube Railways and Bad Air, 99
 Undeveloped Land Duty, 566
 Uranium, 352, 423
 Victoria and Albert Museum Catalogues, 543
 Waltham Abbey, 398
 Waning Popularity of Picture Exhibitions, 207
 Westminster Hall, 122, 187

Reviews.

Analysis of Regulations Governing Pottery Manufacture in British Isles, by W. Burton, 63
 Arbitration Clause in Contracts, by E. J. Rimmer, 289
 Building Code, by F. W. Fitzpatrick, 559
 Cathedrals of England and Wales, by F. Bond, 63
 Clerk of Works; the, by G. Metson, 559
 Colour Decoration of Architecture, by J. Ward, 517
 Cranes and Hoists, by H. Wilda, 559
 Elements of Heating and Ventilation, the, by A. M. Greene, jun., 25
 English and Welsh Cathedrals, by T. D. Atkinson, 223
 Geometry of Building Construction, by G. Thompson, 63
 Greek Art and National Life, by S. C. K. Smith, 349
 Handbook of Structural Steelwork, 123
 Heating Systems, by F. W. Raynes, 25
 Historical London Church, an, by T. F. Bunnus, 559
 Land Transfer Scandal, the, by J. S. Rubinstein, 290
 Natural Rocks, Asphalts and Bitumens, by A. Danby, 64
 New English System of Money, Weights and Measures, and Arithmetic, by G. Elbow, 223
 Public Baths and Bathing Places, by E. H. Payne, 559
 Structural Drafting, by F. O. Dufour, 290
 Wanted, a Ministry of Fine Arts, by W. Dewhurst, 289

INDEX OF ILLUSTRATIONS.

* * THE LITHOGRAPHIC ILLUSTRATIONS WILL BE FOUND OPPOSITE TO THE PAGES QUOTED.

Abbey de St. Georges de Boscherville, Normandy, 220
 Apollo Bunder, Calcutta, Reception Pavilion, 136
 Bacchus Wine Cabinet and Chinese Chip-
 pendale Pedestal, 532
 Balcony Front in Wrought-iron from Paris, 112
 Beverley Minster, Wrought-iron Gates, 16
 Buckingham Palace, New Front, 460
 Cabinet in Oak, 460
 Calcutta Medical College, 136
 Calcutta, New Secretariat, 136
 Canning College, Lucknow, 160
 Canterbury Cathedral, Western Towers, 316
 Cardiff Coal and Shipping Exchange, 292
 Château at Fontaine le Bourg, Normandy, 220
 Château Cailly, Normandy, 220
 Château Cleres, Normandy, 244
 Château de Martainville, Normandy, 200
 Château Farm, Montigny, Normandy, 200
 Chinese Reception Room, Shanghai, 340
 Chipping Campden Tower, 412
 Coalbrookdale Vicarage, Shropshire, 292
 Cortile of Palazzo Vecchio, Florence, 604
 Country House, a Small, 244
 Croydon King Edward VII. Memorial, 64
 Daly College, Indore, 136
 Design for Business Premises, Victoria
 Station, London, 112
 Devonport Municipal Buildings Competi-
 tion, 364
 Dover, an Old Street in, 16

Edmund Wright Almshouses, Nantwich, 364
 Eighteenth-century Pump, Poole, Dorset, 364
 Ellesborough House, Roehampton Lane, S.W., 412
 Evesham Bell Tower, 412
 Evesham, Booth Hall, 292
 Furze Hill, Burgh Heath, House at, 64
 Gare d'Orleans, Paris, 180
 Genoa Railway Station, 180
 Georgian Cabinet, 532
 Ghent, View in, 340
 Grendon Almshouse Infirmary, Exeter, 292
 Hall in Jacobean Style, Design for, 112
 Institute of Mechanical Engineers, London, 436
 Institution of Civil Engineers, London, 484, 508, 556
 Jacobean House, Winchcombe, Gloucs., 40
 Lanercost Priory, 40
 Leeds Training College, 268, 316
 Lloyds Bank, Doncaster, 460
 Lloyds Bank, Keighley, 604
 Longpaon Church, Normandy, 200
 Ludlow Butter Cross, 40
 Manoir, Bosc Guerard, Normandy, 244
 Mausoleum at Putney Vale Cemetery, 436
 Medical College, Lucknow, 160
 Montagne des Arts, Brussels, 340
 Muir College, Allahabad, 136
 New Council Chamber, Madras, 160
 New Pavilion, Government House, Bom-
 bay, 160
 Paisley, Coats' Memorial Church, 16

Panel from Vatican, Rome, 340
 Petit Andelys, Normandy, 244
 Pigeonnier, Boos, Normandy, 200
 Poona Government House, Dining Room, 136
 Prudential Assurance Buildings, Middle-
 brough and Doncaster, 64
 Reigate, House at, 40
 Rochester Guildhall Staircase, 340
 Royal College of Surgeons, London, 220
 Rue Eau de Robec, Rouen, 16
 Ry Church Porch, Normandy, 200
 S. Andrea, Vercelli, Piedmont, 88
 St. Andrew's Church, Holborn, 180
 St. John the Baptist, Kensington, 388
 St. John's Hospital, Canterbury, 316
 St. Mary, Morpeth, Northumberland, 388
 St. Matthew's Church, Edinburgh, 16
 St. Paul's Cathedral, Choir Screen, 40
 St. Paul's Girls' School, Hammersmith, W., 580
 San Martino, Naples, Interior, 436
 Staircase, Poole, Dorset, 436
 Stockport Grammar School, 180
 Streets in Winchcombe, Gloucs., 292
 Tudor House, Broadway, Worcs., 292
 Two Hall Pedestals and a Dolphin Stand, 532
 Upper Ship Hotel, Reading, 412
 Versailles Wrought-iron Balcony, 64
 Window, Christchurch Priory, Hants, 388
 Window, 55 Westgate Road, Newcastle-
 upon-Tyne, 316

ARCHITECTS AND ARTISTS.

Allen, J. G., 99
 "Alpha," 4, 64, 304, 376
 Atkinson, G. W., 256
 Begg, J., 124
 Bernard, C., 100, 170
 Blanc, H. J., 4
 Bolte, —, 180-1
 Bourmann & Perna, 376
 Bartning, O., 581
 Briggs & Browning, 52
 Brooks, Son & Adkins, 376
 Bull, H., 461
 Burrows, W. J., 378, 551
 Cameron, C., 330-41, 353-61
 Carter, C. S., 495
 Champneys, B., 40
 "Chelt," 52
 Clapham, F. D., 424
 Clarke, J. M., 352
 Curry, J. H., 206-7
 De la Motte, 17
 De Montferrand, 16
 Dmitriev, M., 58
 "Ebor," 232, 591
 Emanuel, F. L., 4, 328
 Ernest, G., 364
 Fomin, M., 29
 Goodman, H., 519-21, 3, 5, 7, 9, 31-3
 Gotch & Saunders, 160-1
 Grinberg & Doubinsky, 388-9
 Harris, E. S., 232
 Heath, S., 257-9

Hirshovitch & Lialevitch, 54
 Holland, P. E., 400
 Horsley, G. C., 568-9
 "If," 352, 376, 424
 Jacob, Sir S., 124, 148
 Kacoulidis, M., 153
 Keys & Dowdeswell, 352
 Kirk, A. E., 256
 Kitson, S. D., 256, 304, 448, 592
 Kokorinov, M., 17
 Kroger, J., 605
 Lialevitch, M., 31, 51
 Lidval, M., 53, 55
 Littmann, M., 365
 Lowes, A. E., 28, 280, 282-6, 291-3, 374-5, 400
 Melani, A., 555-7
 Mezen, —, 244-5
 Micheli, V., 64
 Miller, J., 424, 472, 496, 544
 Minash, M., 56-7
 Munby, A. E., 508
 Nicholls, W. H., 148
 Oertel, F. O., 124
 Orr, A. A., 3, 9
 Paciarella, G., 155
 Peretiatkovitch, M., 31
 "Plato," 28, 328
 Plumet, —, 268
 Preckel, T., 269
 Prentice, A. N., 208
 Ransome, J., 124
 Rastrelli, M., 13-6

Reed, H., 280
 Robb, W. A., 351
 Robinson & Jones, 256
 Rogers, M., 448
 Rossi, M., 17
 Runtz, E., 100
 Salmon, C. E., 28
 Schmitz, B., 436
 Schofield, W. P., 256, 304
 Seraphimov, —, 388-9
 Seward, E., 279
 Smith, S., 40
 Spalding & Theakston, 170
 Stehuko, M., 30-1
 Styles, G. C., 100
 Tayler, A. L., 328
 Thorp, J. B., 326
 Veil & Herms, 604
 Vimort, M., 136-7
 Waterhouse, P., 52
 Watney, D., 568-9
 Webb & Sutton, 400
 Webb, Sir A., 448
 Webb, H. G., 4, 304
 Windsor, F., 52
 Wittet, G., 124, 148
 Wollenberg, A., 580
 Wood, L. S., 166-8, 186-7, 189, 208, 232
 "Y Ddraig Goch," 494
 Zahn, R., 412-13
 Zakharov, M., 15-6
 Zell, F., 316-7

NOTED.

Various B. & B.
S. Norman B.
L. & M. Norman B.
M. & M. Norman B.

Secretary B. & B.
Domestic B.
at 4.
B. & B. B. & B.
of B. & B. B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.

B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.

B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.
B. & B. B. & B.

Architect	and contract
reporter.	

NA1
A63
v.90

YH003852

276336

Architect

v. 90

NAI

A 6.3

v. 90

UNIVERSITY OF CALIFORNIA LIBRARY



